Government
Publications

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Ontario Legislative Assembly
72
703

SESSIONAL PAPERS

VOL. XLVII.—PART XI.

FIRST SESSION

OF THE

FOURTEENTH LEGISLATURE

OF THE

PROVINCE OF ONTARIO

140990
11/12/16

SESSION 1915

TORONTO:
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1915

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TORONTO

LIST OF SESSIONAL PAPERS

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Auditor, Provincial, Statements	53	"
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Bee-Keepers' Association, Report	35	*Printed.*
Bi-lingual Schools, regulation No. 17, etc.	74	*Not Printed.*
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Births, Marriages and Deaths, Report	20	"
Canadian Northern Railway construction, timber cut	77	*Not Printed.*
Cemetery Officials' Convention	68	"
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English-French Schools, Regulation No. 17, etc.	74	*Not Printed.*
Entomological Society, Report	36	*Printed.*
Estimates, 1915-16	2	"
Factories, Report	46	*Printed.*
Farmers' Institutes, Report	40	"
Feeble-minded, Report	24	"
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Foley Bros., rights of, to cut timber	77	*Not Printed.*
Friendly Societies, Report	11	*Printed.*
Fruit Growers, Report	44	"

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Live Stock Branch, Report	38	*Printed.*
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CONTENTS OF PART I.

No. 1 Public Accounts of the Province for the year ending 31st October, 1914. Presented to the Legislature, February 23rd, 1915. *Printed.*

No. 2 Estimates—Supplementary, for the service of the Province for the year ending 31st October, 1914-15. Presented to the Legislature, February 23rd and March 17th, 1915. *Printed.* Estimates for the year ending 31st October, 1916. Presented to the Legislature, 23rd March, 1915. *Printed.*

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No. 3 Report of the Department of Lands, Forests and Mines for the year 1914. Presented to the Legislature, 29th March, 1915. *Printed.*

No. 4 Report of the Bureau of Mines for the year 1914. Presented to the Legislature, March 19th, 1915. *Printed.*

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No. 5 Report of the Inspector of Division Courts for the year 1914. Presented to the Legislature, February 23rd, 1915. *Printed.*

No. 6 Report of the Inspector of Legal Offices for the year 1914. Presented to the Legislature, March 24th, 1915. *Printed.*

No. 7 Report of the Inspector of Registry Offices for the year 1914. Presented to the Legislature, March 29th, 1915. *Printed.*

No. 8 Report of the Provincial Municipal Auditor for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

No. 9 Report of the Queen Victoria Niagara Falls Park Commission for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

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No. 10 Report of the Superintendent of Insurance for the year 1914. Presented to the Legislature, March 9th, 1915. *Printed.*

No. 11 Report of the Registrar of Friendly Societies for the year 1914. Presented to the Legislature, March 9th, 1915. *Printed.*

No. 12 Loan Corporations—Statements made by Building Societies, Loan Companies, and Loaning Land and Trust Companies, for the year 1914. Presented to the Legislature, March 9th, 1915. *Printed.*

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No. 13 Report of the Department of Public Works for the year 1914. Presented to the Legislature, March 8th, 1915. *Printed.*

No. 14 Report of the Game and Fisheries Branch for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

No. 15 Report on Highway Improvement in the Province for the year 1914. Presented to the Legislature, March 17th, 1915. *Printed.*

No. 16 Report of the Bureau of Labour for the year 1914. Presented to the Legislature, March 25th, 1915. *Printed.*

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No. 17 Report of the Department of Education for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

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No. 18 Report of the University of Toronto Board of Governors for the year ending 30th June, 1914. Presented to the Legislature, February 23rd, 1915. *Printed.*

No. 19 Report of the Secretary and Registrar of the Province for the year 1914. Presented to the Legislature, March 18th, 1915. *Printed.*

No. 20 Report of the Registrar-General upon Births, Marriages and Deaths for the year 1914. Presented to the Legislature, March 15th, 1915. *Printed.*

No. 21 Report of the Provincial Board of Health for the year 1914. Presented to the Legislature, March 15th, 1915. *Printed.*

No. 21A. Report of the District Board of Health for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

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No. 22 Report upon the Hospitals for the Insane for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

No. 23 Report upon the Hospitals for Idiots and Epileptics at Orillia and Woodstock, for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

No. 24 Report upon the Feeble-minded of the Province for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

No. 25 Report upon the Hospitals and Charities of the Province for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

No. 26 Report upon the Prisons and Reformatories of the Province for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

No. 27 Report on the neglected and dependent Children in the Province for the year 1914. Presented to the Legislature, March 29th, 1915. *Printed.*

No. 28 Report upon the operation of the Liquor License Acts in the Province during the year 1914. Presented to the Legislature, February 23rd, 1915. *Printed.*

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No. 29 Report of the Department of Agriculture for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

No. 30 Report of the Agricultural College and Experimental Farm for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

No. 31 Report of the Ontario Veterinary College for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

No. 32 Report of the Agricultural and Experimental Union for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

No. 33 Report of the Corn Growers' Association for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

No. 34 Report of the Ontario Vegetable Growers' Association for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

No. 35 Report of the Bee-Keepers' Association for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

No. 36 Report of the Entomological Society for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

No. 37 Report of the Dairymen's Association for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

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No. 38 Report of the Live Stock Branch for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

No. 39 Report of the Stallion Enrollment Board for the year 1914. Presented to the Legislature, March 24th, 1915. *Printed.*

No. 40 Report of the Farmers' Institutes for the year 1914. Presented to the Legislature, March 24th, 1915. *Printed.*

No. 41 Report of the Women's Institutes for the year 1914. Presented to the Legislature, March 24th, 1915. *Printed.*

No. 42 Report of the Agricultural Societies of the Province for the year 1914. Presented to the Legislature, March 24th, 1915. *Printed.*

No. 43 Report of the Horticultural Societies for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

No. 44 Report of the Fruit Growers' Association for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

No. 45 Report of the Bureau of Industries for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

No. 46 Report of the Inspectors of Factories for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

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No. 47 Report of the Temiskaming and Northern Ontario Railway Commission for the year 1914. Presented to the Legislature, March 8th, 1915. *Printed.*

No. 48 Report of the Hydro-Electric Power Commission for the year 1914. Presented to the Legislature, March 25th, 1915. *Printed.*

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No. 49 Report of the Ontario Railway and Municipal Board for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

No. 50 Return from the Records of the General and By-Elections held in 1914. Presented to the Legislature, February 16th, 1915. *Printed.*

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No. 51 Report of the Provincial Archivist for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

No. 52 Report of the Librarian on the State of the Library. Presented to the Legislature, February 24th, 1915. *Not Printed.*

No. 53 Provincial Auditor's Statements for the year 1913-14. Presented to the Legislature, February 25th, 1915. *Printed.*

No. 54 Report of the Workmen's Compensation Board, Ontario, for the year ending 31st December, 1914. Presented to the Legislature, February 22nd, 1915. *Printed for distribution.*

No. 55 Copies of Orders-in-Council under subsection 6 of section 78, Cap. 62, R.S.O. 1914, relating to Surrogate Courts. Presented to the Legislature, February 23rd, 1915. *Not Printed.*

No. 56 Copies of Orders-in-Council and Regulations made under the authority of the Department of Education or of the Acts relating to Public, Separate or High Schools. Presented to the Legislature, February 23rd, 1915. *Printed for distribution.*

No. 57 Rules and Regulations made under chap. 24, R.S.O. 1914 as amended by Cap. 10, 4 Geo. V., relating to Succession Duties. Presented to the Legislature, February 25th, 1915. *Printed for distribution.*

No. 58 Whitson's Report of Northern Development Branch under 2 Geo. V., Cap. 2, for the year 1914. Presented to the Legislature, March 18th, 1915. *Printed.*

No. 59 Return to an Order of the House of the 22nd February, 1915, for a Return showing:—If any part of the 32,000 acres now being cleared, or about to be cleared, by the Government in the vicinity of Sudbury is to be set apart or used to give work to the unemployed. How many acres are to be so set aside, and what are the terms and conditions upon which the unemployed can secure work. Presented to the Legislature, March 8th, 1915. Mr. *Carter. Not Printed.*

No. 60 Report of the Honourable Mr. Justice Riddell, as representative of the Province of Ontario at the Ceremonies in the City of New Orleans held in Commemoration of the one hundredth anniversary of the Battle of New Orleans and of the one hundred years of peace which began with the end of that Battle. Presented to the Legislature, March 15th, 1915. *Printed.*

No. 61 Report of the Commissioner appointed to enquire into the financial affairs of the Village of Weston. Presented to the Legislature, March 15th, 1915. *Not Printed.*

No. 62 Return to an Order of the House of the 15th March, 1915, for a Return showing:—1. All correspondence between the Government or any officer or official thereof and Paul Morand, License Inspector for North Essex, in reference to the resignation or dismissal in the month of April, 1914, of the said Paul Morand as License Inspector for North Essex. 2. All correspondence and communications between the Government or any officer or official thereof and the said Paul Morand and any resident or residents of North Essex with reference to the re-appointment of the said Paul Morand as License Inspector in North Essex in the month of June, 1914, a few days before the election. Presented to the Legislature, March 15th, 1915. Mr. *Ducharme. Not Printed.*

No. 63 Agreement and Contract with Litho-Print, Limited, in connection with the Binding, etc., for the several Departments of Government. Presented to the Legislature, March 23rd, 1915. *Printed.*

No. 64 Return to an Order of the House of the 10th March, 1915, for a Return showing:—1. Copies of all petitions or requests received by the Government since the 1st day of January, 1914, from any Municipal Authority or Body in the Province in reference to the imposition of a tax upon automobiles, or as to the distribution of that tax or a portion thereof to the municipalities maintaining the roads. 2. Copies of all correspondence between the Government and any officer or official thereof and any Municipality of the Province, or any Automobile Association or Organization in reference to the said matter. Presented to the Legislature, March 17th, 1915. Mr. *Racine. Not Printed.*

No. 65 Return to an Address to His Honour the Lieutenant-Governor of the 11th March, 1915, for a Return of:—1. Copies of all Orders-in-Council and correspondence between the Government and any officer or official thereof and the Timiskaming and Northern Ontario Railway Company and any officer or official thereof in reference to the retirement of Frederick Dane as one of the Commissioners of the said Railway. 2. Copies of all Orders-in-Council and correspondence between the Government and

any officer or official thereof and the Timiskaming and Northern Ontario Railway Company with reference to the appointment of Mr. Lee as one of the Commissioners of the said Railway. Presented to the Legislature, March 19th, 1915. Mr. *Mageau. Not Printed.*

No. 66 Return to an Order of the House of the 15th March, 1915, for a Return showing:—1. What officers have been appointed by the Workmen's Compensation Board under section 59 of the Workmen's Compensation Act. 2. What are the names, dates of appointment, and salaries of each officer so appointed. Presented to the Legislature, March 18th, 1915. Mr. *Carter. Not Printed.*

No. 67 Return to an Order of the House of 3rd March, 1915, for a Return showing:—1. All statements furnished by the Canada Copper Company, the International Nickel Company, the Mond Nickel Company and any other companies producing nickel, under section 8 of the Mining Tax Act respecting Taxation. 2.. All reports from any Government mining assessor, made under the provisions of the Mining Taxation Act in respect of the mining operations of the Canada Copper Company, the International Nickel Company or the Mond Nickel Company, and particularly with reference to the royalties or taxes to be paid by the said Companies. 3. All correspondence between the Minister of Lands, Forests and Mines, or the Provincial Treasurer, or any officer or official of the Government and the Canada Copper Company, the International Nickel Company, the Mond Nickel Company and any other Companies producing nickel, with reference to the amount of royalties or taxes paid by the said Companies, or any of them, to the Provincial Treasury of the Province in respect of the ore mined or the mining operations carried on by them in the Province of Ontario. Presented to the Legislature, March 18th, 1915. Mr. *Carter. Not Printed.*

No. 68 Proceedings of the Second Annual Convention of the Association of Cemetery Officials of Canada. Presented to the Legislature, March 26th, 1915. *Not Printed.*

No. 69 Return to an Address of the 23rd day of March, 1915, praying for a Return shewing: 1. Copy of Order-in-Council dated 14th day of February, 1871, appropriating and transferring to the Government of the Province of Ontario the lands and property known as The Ontario Government House. 2. Copy of the Letters Patent dated the 15th day of January, 1908, declaring the said lands to have been transferred and appropriated for the use of the Provincial Legislature of the Province of Ontario within the meaning of the British North America Act, 1867. Presented to the Legislature 26th March, 1915. Mr. *Bowman. Not Printed.*

No. 70 Return to an Order of the House of the 25th March, 1915, for a Return showing:—1. How many convictions for violation of the Liquor License Law have been made for the electoral district for North Essex since the re-appointment of Paul Morand as License Inspector at the end of May, 1914. 2. Have Provincial officers or detectives been sent into this district since the 1st of June, 1914, to assist in securing enforcement of the law. 3. How many prosecutions have been instituted by, or at the instance of Provincial officers or detectives, and the said Paul Morand, respectively. Presented to the Legislature, March 29th, 1915. Mr. *Richardson. Not Printed.*

No. 71 Special Report on the Organization and Administration of the Hospitals for the Insane, Feeble-Minded and Epileptics and District Industrial Farms of the Province. Presented to the Legislature, March 29th, 1915. *Printed for distribution only.*

No. 72 Return to an Order of the House of the 24th March, 1915, for a Return showing:—1. What is the total number of the herd for dairy purposes now maintained by the Government at the Guelph Prison Farm. 2. How many of these were purchased and how many raised on the farm, respectively. 3. What was the total amount paid by the Government for the portion of the herd purchased by them. Presented to the Legislature, 31st March, 1915. Mr. *Ham. Not Printed.*

No. 73 Financial Statement of the Treasurer of Ontario. Presented to the Legislature, April 2nd, 1915. *Printed for distribution only.*

No. 74 Return to an Order of the House of 31st March, 1915, for a Return showing:—1. The number of English-French schools which have complied in the year 1914 with Regulation 17 of the Department of Education passed in the year 1913. 2. The number of English-French schools which have not complied with said Regulation 17 in the year 1914. 3. What English-French schools have received grants in the year 1914 under the Public Schools Act, and the amount thereof. 4. Copy of joint reports, if any, made by any inspectors pursuant to Regulation 17 and dated on or about May 23rd, 1913. 5. Copy of letters exchanged between ex-Inspector Henri Saint Jacques and the Department of Education or any officer or officers thereof with reference to the resignation of the said Henri Saint Jacques which are dated on or about the 18th October, 1913, and the 23rd October, 1913. Presented to the Legislature, April 2nd, 1915. Mr. *Mageau. Not Printed.*

No. 75 Return to an Order of the House of the 17th March, 1915, for a Return showing:—1. How many timber berths or locations have been sold since the 1st day of January, 1914. 2. Were all such berths or locations advertised for sale; if not, which ones were sold without advertisement. 3. If any were sold without

being advertised for sale, who were the purchasers, and what are the prices realized and the dates of the sales, respectively. 4. In what papers were the different timber berths or locations respectively advertised for sale, and what were the dates of such advertisements respectively. 5. What is the period for which they were so advertised in the said papers, respectively. Presented to the Legislature, April 2nd, 1915. Mr. *Munro*. *Not Printed.*

No. 76 Telephone Systems, specifications, etc., as *per* Report of Ontario Railway and Municipal Board. Presented to the Legislature, April 2nd, 1915. *Printed.*

No. 77 Return to an Order of the House of the 28th April, 1914, for a Return showing:—1. If the Government granted the right to cut Pine or any other timber to Messrs. Foley Bros., Contractors, or to the Northern Construction Company, Limited, or to any person, firm or company in connection with the construction of the Canadian Northern Railway Company in the vicinity of Duchesne Lake, situate about 90 miles from the Town of Sudbury. 2. If so, to what persons, firms or companies were such permits made, and the dates of each. 3. What consideration did the Government receive with respect to each of the said permits, if any. 4. What Pine or other timber has been cut to date by each of the persons, firms or companies with respect to such permits. 5. How long was the right to cut to last and over what extent of land; and what were the other terms or conditions upon which such permits were made, if any. 6. What was the date of the completion of the construction of the Canadian Northern Railway at this point. 7. What amount of timber has been cut by any person, firm or company to whom such permit, as mentioned, has been made. 8. Is any person, firm or company at the present time cutting timber pursuant to such permit. Presented to the Legislature, April 2nd, 1915. Mr. *Richardson*. *Not Printed.*

No. 78 Return to an Order of the House of the 27th March, 1914, for a Return of:—All correspondence with reference to the resignation of Mr. Harkness, Manager, Superintendent of the Jordan Experimental Station. 2. The reports of the Committee or Advisory Board of the said farm for the years 1911, 1912 and 1913. 3. Statements showing the total expenditure to date divided between cost of building, cost of land, improvements of land and cost of management. Presented to the Legislature, April 2nd, 1915. Mr. *Anderson (Bruce.)* *Not Printed.*

No. 79 Return to an Order of the House of the 7th April, 1914, for a Return showing:—1. If the Lieutenant-Governor in Council made any arrangements under section 9 of the Succession Duties Act, with any part of the British Dominions, or with any

foreign country; and if so, with what Provinces or countries. 2. If no such arrangement has been made with the Province of Quebec, does the Honourable the Provincial Treasurer make an allowance with respect to Succession Duties in Ontario with respect to shares of stock of a bank or other financial institution whose head office is in the Province of Quebec. 3. If it is true that a Succession Duty is payable with respect to such shares, both in Quebec and Ontario, will legislation be introduced to protect estates from payment of double duty. Presented to the Legislature, April 2nd, 1915. Mr. *Marshall.* *Not Printed.*

No. 80 Return to an Order of the House of the 27th April, 1914, for a Return showing:—1. What consideration was paid by the licensee to the Government in respect of the issue of the original licenses respectively, of the territory included within the proposed agreement with the Pembroke Lumber Company. 2. How much was paid by the Pembroke Lumber Company for these licenses respectively at the date of the purchase thereof by them. 3. What amounts of pine, hemlock, cedar, spruce, hardwood and other timber respectively have been cut on the limits or areas covered by the proposed agreement and returned to the Department as so cut by the Pembroke Lumber Company in each of the years since the purchase thereof by them. Presented to the Legislature, April 2nd, 1915. Mr. *Bowman.* *Not Printed.*

No. 81 Statement on the distribution of the Revised and Sessional Statutes, up to 31st December, 1914. Presented to the Legislature, April 2nd, 1915. *Not Printed.*

Clover Mill on Farm of A. Hird, north half lot 10, con. 3, Dymond.

THIRTEENTH ANNUAL REPORT

OF THE

Temiskaming and Northern Ontario Railway Commission

ONTARIO GOVERNMENT RAILWAY

HON. W. H. HEARST, PREMIER

For Year Ended October 31st

1914

PRINTED BY ORDER OF

THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:

Printed and Published by L. K. CAMERON, Printer to the King's Most Excellent Majesty

1915

Printed by
WILLIAM BRIGGS
29-37 Richmond Street West
TORONTO

To His Honour JOHN STRATHEARN HENDRIE, C.V.O., a Lieutenant-Colonel in the Militia of Canada,

Lieutenant Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

The undersigned has the honour to present to Your Honour the Thirteenth Annual Report of the Temiskaming and Northern Ontario Railway Commission for the fiscal year ended October 31st, 1914.

Respectfully submitted,

F. G. MACDIARMID,

Minister of Public Works.

TORONTO, December 31st, 1914.

HON. FINLAY G. MACDIARMID,

Minister of Public Works,

Toronto.

SIR,—I have the honour, by direction, to submit to the Legislature the Thirteenth Annual Report of the Temiskaming and Northern Ontario Railway Commission for the fiscal year ended October 31st, 1914.

I have the honour to be, Sir,

Your obedient servant,

A. J. McGEE,

Secretary-Treasurer.

Temiskaming and Northern Ontario Railway Commission.

J. L. Englehart	*Chairman*	Petrolia.
Denis Murphy	*Commissioner*	Ottawa.
Geo. W. Lee	*Commissioner and General Agent*	North Bay.

CHIEF OFFICERS.

A. J. McGee	*Secretary-Treasurer*	Toronto.
S. B. Clement	*Chief Engineer and Supt. of Maintenance*	North Bay.
W. A. Griffin	*Superintendent of Traffic*	North Bay.
H. F. Macdonald	*Accountant*	Toronto.
A. J. Parr	*General Freight and Passenger Agent*	North Bay.
W. A. Graham	*Purchasing Agent and Storekeeper*	North Bay.
A. R. H. Mitchell	*Traffic Accountant*	North Bay.
C. L. Ferguson	*Paymaster*	North Bay.
T. Ross	*Master Mechanic*	North Bay.
H. L. Rodgers	*Mechanical Engineer*	North Bay.
C. Battley	*Air Brake Inspector*	North Bay.
S. H. Ryan	*Train Master*	North Bay.
R. L. Lamb	*Chief Train Despatcher*	North Bay.
Wm. Young	*General Roadmaster*	North Bay.
S. J. Faught	*Supervisor*	North Bay.
J. Drinkwater	*Supervisor*	North Bay.
W. J. Oldham	*Bridge and Building Master*	North Bay.
W. J. Douglas	*Road Foreman, Locomotives*	North Bay.
W. J. Kelly	*Supt. Telegraphs and Telephones*	North Bay.
Arthur A. Cole	*Mining Engineer*	Cobalt.
J. G. Kerry	*Consulting Engineer*	Toronto.

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION.

General Remarks.

Accounts and statistics for year ended October 31st, 1914, herewith:—
Mileage in operation on October 31st, 1914, was:—

Main Line.

	Miles.	
North Bay to Cochrane	252.19	
		252.19

Branch Lines.

Charlton Branch	7.80	
Porcupine Branch (includes Iroquois Falls Branch)	40.11	
Elk Lake Branch	28.50	
		76.41
Nipissing Junction Spur—Leased to G. T. Ry.		2.10

Yards and Sidings.

Yards and Sidings, Main and Branch Lines	107.01	
Liskeard Spur	1.01	
		108.02
Double Track, N. Cobalt to Haileybury		1.70

Subsidiary Lines.

*Nipissing Central Railway	12.64	
		12.64
Total Mileage		453.06

Following is condensed statement of Revenue Account for the fiscal year ended October 31st, 1914, compared with the year 1913. The sub-divisions of the condensed statement for 1914 are shown in detail in the financial part of this report:

	1913.	1914.
Revenue from Transportation	$1,567,228.43	$1,580,668.28
Revenue other than Transportation	88,926.22	90,230.59
Total Operating Revenue	$1,656,154.85	$1,670,898.87
Operating expenses	1,477,550.01	1,468,574.23
Net Operating Revenue	$178,604.84	$202,324.64
Ore Royalties	81,421.20	55,874.45
	$260,026.04	$258,199.09
Hire of Equipment, etc.	4,702.32	29,221.86
*Total Earnings	$255,323.72	$228,977.23

* Kerr Lake Branch is now part of Nipissing Central Railway under lease.

*Operating Expenses amount to 87.8 per cent. of the Gross Earnings, the Net Earnings to 12.2 per cent., as compared with 88.7 per cent. and 11.3 per cent., respectively, for the twelve months ended October 31st, 1913.

Earnings and Expenses of Nipissing Central Railway are not included, but shown separately on page 511 of this Report.

Total of pay-rolls for the year amounted to $1,112,866.73

Comparison of Pay-rolls since commencement of Operation:—

1905	$216,119.37
1906	450,214.02
1907	574,959.09
1908	687,541.66
1909	681,072.47
1910	878,192.07
1911	783,218.89
1912	1,090,310.65
1913	1,218,473.04
1914	1,112,866.73
Total	$7,692,967.97

There is large satisfaction in submitting statement covering closing records, fiscal year, 1913-14. We are very thankful that we are enabled to point to records notwithstanding very serious conditions which prevail the world over. Returns from various Railways, with which we are familiar, very naturally pointed the way, so to speak, that T. & N. O. would be no exception, hence satisfaction that notwithstanding trying conditions which prevail, we are enabled to place on record, that while returns do not quite equal those of 1912-13, yet records for 1913-14 point to better conditions as far as various expenditures in connection with receipts emphasize.

The various statements contained in the financial part of report, fully itemized, will show:—

	Nov. 1st to Oct. 31st 1914	1913
Revenue per mile of road	$5,061 18	$5,098 89
Expenditure per mile of road	4,448 06	4,548 97
Net revenue per mile of road	$613 12	$549 92

A betterment in Net Revenue of $63.20 per mile of Road operated, which during year 1914 averaged 330.14 miles as against 324.81 miles for year 1913.

RECEIPTS.

	Nov. 1st to Oct. 31st 1914	1913
Revenue from Transportation	$1,580,668 28	$1,567,228 43
Revenue from operations other than Transportation	90,230 59	88,926 42
Total Revenue	$1,670,898 87	$1,656,154 85

A net betterment of $14,744.02—and while freight revenue for current year increased $45,614.19 over previous year, unfortunately passenger revenue decreased $31,229.29, the many other items entering into Receipts making up the increase.

Expenditures.

	Per cent.	Nov. 1st to Oct. 31st 1914	1913	Per cent.
Maintenance of Way and Structures.....	24.4	$408,046 15	$430,820 04	26
Maintenance of Equipment	17	284,935 87	242,633 93	14.1
Traffic Expenses	1.1	18,872 65	16,857 36	1
Transportation Expenses	39	651,687 20	680,480 08	41.1
General Expenses	6.3	105,032 36	106,758 60	6.5
Total Operating Expenses	87.8	$1,468,574 23	$1,477,550 01	88.7
Balance		$202,324 64	$178,604 84	

Maintenance of Way.

Commission has continued its policy of making ample provision for upkeep of the roadbed; renewal of rails, re-alignment of curves, ballasting, drainage, contributing the largest items of expense. Details of work will be found in report of Chief Engineer and Superintendent of Maintenance.

Maintenance of Equipment.

Expense under this head has increased $42.301.94, but $33,883.92 of this is increase in amount added to Reserve Fund, to cover depreciation on rolling equipment, and to provide for the renewal of cars and locomotives retired, sold or destroyed. The balance of the increase being distributed over the running repairs, with increases in repairs to passenger and freight cars, and reduction in repairs to locomotives and work equipment.

Commission has fully maintained rolling stock, and equipment to highest standard of efficiency.

Details of work will be found in report of Master Mechanic.

Transportation Expenses.

While we have been enabled to reduce expenses $28.792.88, desire to point out that we have taken care of all of our employees, as the following increases indicate:—

Station Employees	$7,496.22
Road Enginemen	3,553.57
Road Trainmen	1,397.51
	$12,447.30

Large decrease in expenses points to more economical fuel consumption for yard and road locomotives, amounting to $41,674.17. Other increases and decreases are noted in the comparative statements financial part of Report.

Surely results emphasize the right to claim that the statements are satisfying.

General.

For year under review, as compared with 1912-13, our percentage of Operating Expenses are:—

1914	87.8
1913	88.7

Balance brought down from Result of Operation for year:—

1914	202,324.64
1913	178.604.84

About $24,000.00 of a betterment.
It is, however, under Other Income where lies our disappointment.

Ore Royalties year 1914	$55,874.45
Ore Royalties year 1913	81,421.20

and there is where we have met our coup de Grâce.

Earnings for Fiscal Year 1914	$228,977.23
Earnings for Fiscal Year 1913	255.323.72

We may therefore attribute the decrease in net earnings to the net results from Ore Royalties, which have decreased $25,546.75 as against our total decrease for the year as compared with 1912-13, $26,346.49.

We have transmitted to Provincial Treasurer for year under review, cheque for $250,000.00, as follows:—

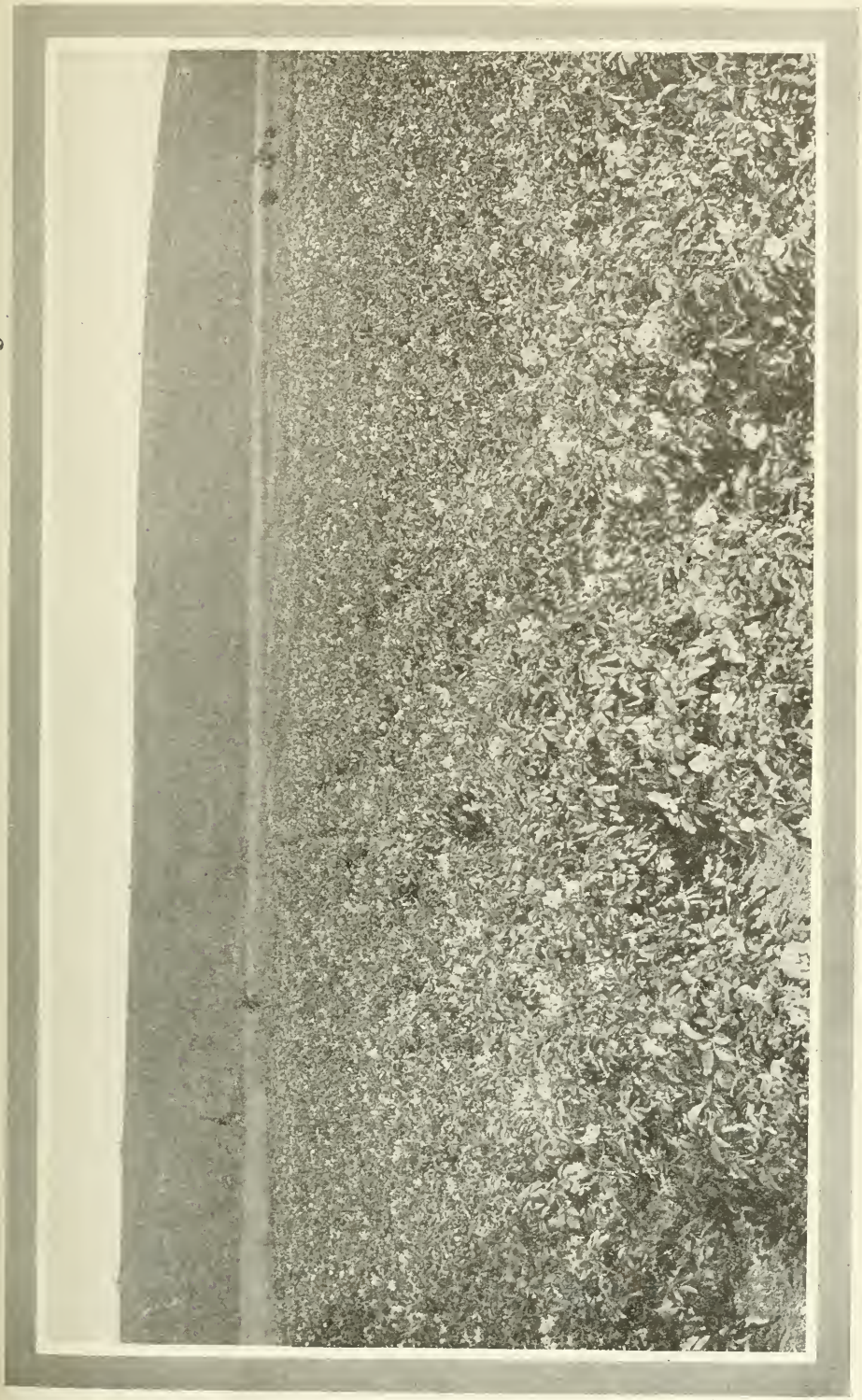
T. & N. O. Ry.	$225,000.00
Nipissing Central Ry.	25,000.00

Increased Cost of Labour.

On pages 18 to 22 of this report, will be found comparisons of wages paid enginemen, trainmen, stationmen, telegraphers, Maintenance of Way and Structures employees—1905 to 1914 inclusive. There have been no changes in the rates of wage of telegraphers last two years, but wage of Maintenance of Way employees has increased from 3 per cent. to 32.5 per cent., while the wage of enginemen and trainmen has increased in some cases over 1913. 2.8 per cent. to 17.2 per cent. The aggregate salaries of telegraphers have increased since 1905 from 3.3 per cent. to 211.1 per cent., and the enginemen and trainmen since 1905 have increased from 9.8 per cent. to 85 per cent.

Mines—Minerals.

Mining Engineer's Preliminary Report only included, the regular complete report for year to December 31st, 1914, to be specially published as usual.



Field of Potatoes—E. F. Stephenson, East Road, New Liskeard.

Surveys—Construction.

Attention is directed to Chief Engineer's Report—Iroquois Falls Branch—James Bay Surveys, *et al.*

Additions and Betterments—Roads.

Attention is directed to Report of Chief Engineer and Superintendent of Maintenance, and General Roadmaster, *re* change of line at Cochrane—additional facilities completed during year—construction of industrial tracks, new stations—houses for Agents and Section Foremen, *et al*—Replacement of timber bridges and trestles by steel bridges, etc., etc.

Telephone Train Despatching.

The second year has not alone demonstrated the utility, but the strong factor in "Safety First."

Right of Way, etc.

Attention is directed to the General Agent's statement of land purchased, see page 164.

Townsites.

Report of Land Commissioner as well as reports of Land Department, see financial part of report.

Demonstration Car.

For the fourth consecutive year, Demonstration Car has travelled through Province, from Ottawa on the east to Sarnia on the west. We are thankful to state, that with the cordial co-operation of the Department of Agriculture, the usual exhibit of roots, grains, vegetables, cereals, has been larger than heretofore, and satisfying, as manifested by the many visitors attending, the strong interest evinced, and the enlarged correspondence that has followed by and from intending settlers in Greater Ontario. We are also deeply indebted to the Canadian Pacific and Grand Trunk Railways, and their very obliging employees, who have assisted materially in making the tour a success.

Desire to reiterate—many letters are being received—north, east, south, west, for information concerning the Great Clay Belt, showing that the people throughout the Province and the Dominion, are very much interested in the development of Greater Ontario. Our representative, Mr. G. E. Palmer, reports that people have freely expressed that the development of Greater Ontario would show more progress than ever.

Over 20,000 people have passed through the car and more than 400 have expressed themselves as intending settlers.

Counsel's Report.

Attention is directed to report of our Counsel, Mr. D. E. Thomson, K.C.

Tariff Rates.

Continue to average as low, and in very many instances lower than other railways for a similar service.

Telegraph and Telephone.

On August 1st, 1914, reduced telegraph rates of 20 per cent., and on Nov. 1st, 1914, telephone tariff was revised reducing rates 20 to 40 per cent. Have pleasure in stating that the Ontario Railway and Municipal Board in approving of telephone rates states they are the lowest in Canada.

Resignation of Commissioner Dane.

On April 16th, 1914, Commission was called upon to accept resignation of Commissioner Fred Dane, with whom they collaborated so long and earnestly. The Commissioner devoted not alone his time unselfishly at large sacrifice, but in so many ways rendered invaluable services to the Province as well as the Commission.

Steel Passenger Cars.

During the year, your railway inaugurated the first All Steel Passenger Trains in Canada. We have pleasure, as we have satisfaction in noticing the success of these All Steel Passenger Trains, the emphasized "Safety First" of all railways.

During year we carried 535,869 passengers, and thankful to say, have kept up good record of not killing or seriously injuring a single passenger. Since 1905 we have carried 4,716,331 passengers and not killed or seriously injured one.

We have pleasure in directing attention to report of Edwards Morgan & Company, Chartered Accountants, with reference to the accounts.

January 19th, 1915.

J. L. Englehart, Esq., Chairman,

Temiskaming & Northern Ontario Railway Commission,
Toronto, Ont.

Dear Sir.—Under instructions from the Commissioners we have maintained a running audit of the accounts of the Commission for the year ending October 31, 1914. Our examination has included the Cash Receipts and Disbursements, Accounts Collectible, Accounts Payable, Agents' and Conductors' Accounts, Foreign Tickets, Foreign Freights, Car Mileage Accounts and Bank Balances.

We certify that all transactions relating thereto have been properly vouched, and that the Cash and Bank Balances have been duly accounted for. We have verified the balances of accounts outstanding and have ascertained that they correspond with the General Ledger Accounts.

We find the books in good order and all information asked for has been promptly given.

We are, yours faithfully,

(Sgd.) Edwards, Morgan & Co.

Insurance—Fire.

Buildings and Contents.

Division No. 1	$631,210	
Division No. 2	192,280	
Kerr Lake Branch	600	
Charlton Branch	9,400	
Porcupine Branch	84,600	
Elk Lake Branch	12,300	
		$930,390

Bridges and Trestles.

Division No. 1	$29,700	
Division No. 2	53,900	
Kerr Lake Branch	6,000	
Charlton Branch	11,100	
Porcupine Branch	12,000	
Elk Lake Branch	15,200	
		127,900

Freight.

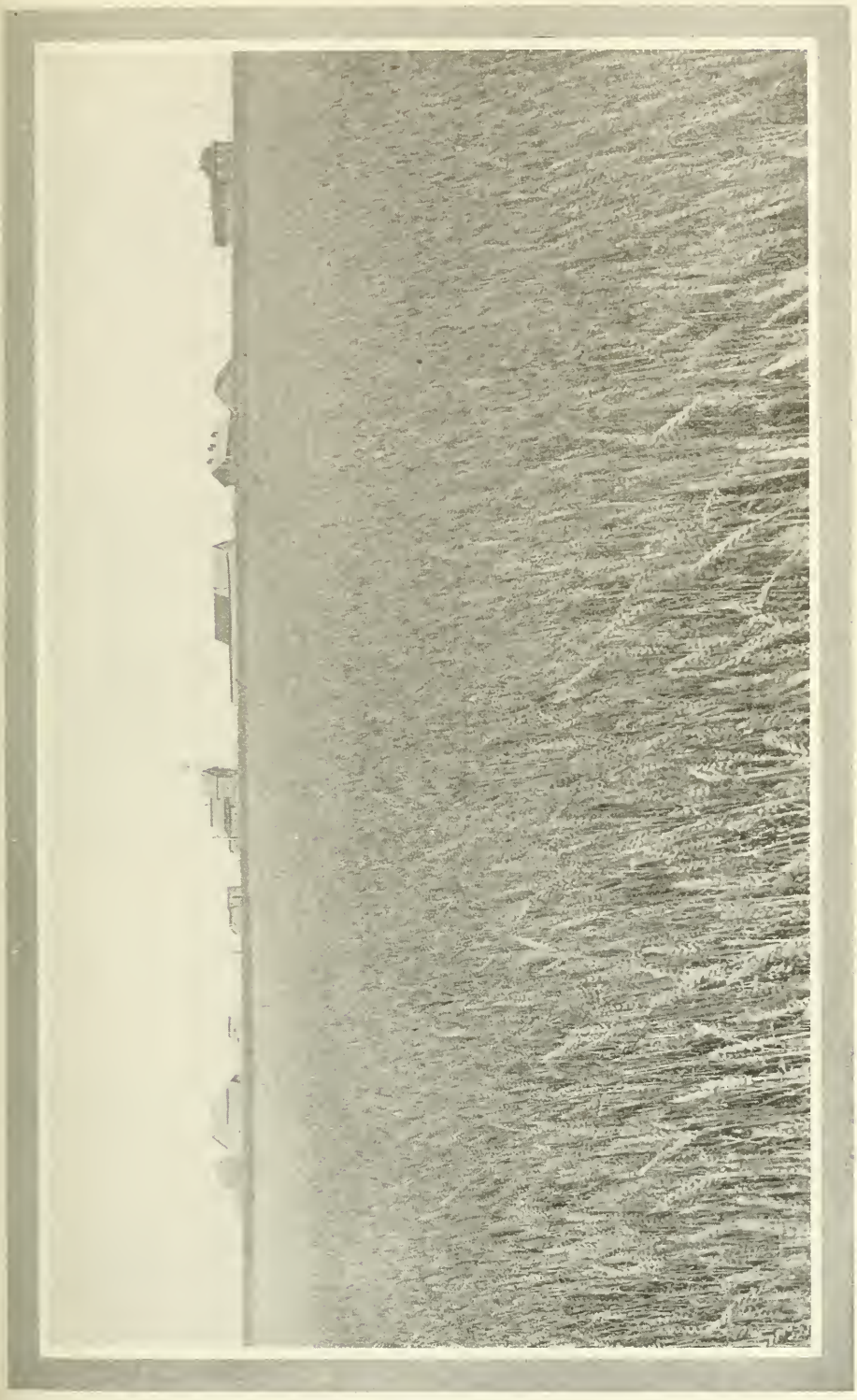
General Merchandise	$200,000	
		200,000

Rolling Stock.

Locomotives and Tenders	$395,000	
Passenger Equipment	315,550	
Freight Equipment	456,240	
Work Equipment	154,850	
Foreign Equipment	100,000	
		1,421,640
		$2,679,930

The rate on above insurance is $1.99 per $100.00 for a period of three years—divided as follows: Western Assurance Co., 50 per cent.; Home Insurance Co., 35 per cent.: Norwich Union Fire Insurance Society, 15 per cent.

The above period agreement expires on December 31st, 1914.



Farm of Walter Bowen, East Road, New Liskeard.

COUNSEL'S REPORT—D. E. THOMSON, K.C.

Litigation.

At the close of the financial year there were no actions pending either by or against the Commission.

Matters pending at the beginning of the year and since closed are the following:

Waldron vs. T. & N. O. Action by passenger for damages for wrongful alleged ejectment from car; tried at Haileybury on November 1st, 1914, by special jury; action dismissed.

T. & N. O. vs. Marshall. Action for arrears of freight; amount of judgment collected.

Gray vs. T. & N. O. Action by injured employee for damages; settlement consummated and release obtained.

T. & N. O. vs. Ferguson & McFadden. Action for damages by fire to property of Commission on siding; settlement effected.

The following actions were instituted since the beginning of the year:

Smith vs. T. & N. O. Action by representatives of employee killed. Settlement consummated and release obtained.

T. & N. O. vs. Hawkins. Action for ejectment; judgment obtained against defendant.

T. & N. O. vs. Barber & Wardell. Action to eject squatters from property covered by lease from the Commission to the Cobalt Townsite Mining Company. Satisfactory settlement consummated.

Accident Claims.

A number of claims by employees and other parties were made during the year. Some have been settled and others abandoned, but in no case except those above mentioned have writs been issued.

Damage Claims.

As usual a considerable number of claims have arisen in respect of freight, baggage, etc., lost, destroyed, delayed, misdelivered or damaged. Most of these claims have been adjusted or abandoned, but some were still pending at the end of the year.

Agreements, Contracts, Etc.

A considerable number of agreements and contracts covering various matters between the Commission and others have been prepared and executed.

Empire Lumber Company.

A satisfactory settlement of accounts and differences between the Commission, Empire Lumber Company, Limited, and the Imperial Lumber Company, has been consummated.

Commando Lake.

Transfer of Commando Lake and strip of land surrounding same to the Town of Cochrane as a public park and recreation ground prepared and executed.

Elk Lake Telephone and Telegraph Co.

Purchase of the Elk Lake Telephone and Telegraph Company, from Mr. A. J. Reece, completed.

Sale to Imperial Bank.

Sale of surface rights of part of the Commission's Station Grounds at Cobalt completed.

Latchford Assay & Refining Co.

The Lessee having failed to comply with terms of lease same has been cancelled and a new lease of the property granted to J. J. McNeil.

Cobalt Lake Mining Company.

The application of the Cobalt Lake Mining Company to drain Cobalt Lake was granted by the Mining Commissioner on terms protecting the Commission's rights.

Mining Leases.

(*a*) Jackpot Silver Mining Company. The lessee having failed to carry on continuous mining operations in accordance with the terms of the lease the same has been cancelled.

(*b*) Cobalt Townsite Surface Rights. An agreement has been entered into between the Commission and the Cobalt Townsite Mining Co., for disposition of surface rights of part of the property included in the lease to the Cobalt Townsite Mining Company on terms mutually satisfactory.

(*c*) Mining Corporation of Canada Limited. The mining leases granted to the Cobalt Townsite Mining Co., Townsite Extension Mines and City of Cobalt Mining Co., respectively have been assigned with the Commission's consent to the Mining Corporation of Canada, Limited, and the said leases have been amended by making the royalties up to and including 1st September, 1915, 7½ per cent. and thereafter 5 per cent. on the net profits.

Canadian Northern Railway Company.

An agreement with the Canadian Northern Railway Company, providing for the crossing of the Commission's line at North Bay, has been prepared and executed.

North Bay Freight Yards.

A number of questions have arisen between the Commission and the Grand Trunk Railway during the year, regarding interpretation of certain clauses of the joint terminal agreement. These have all been satisfactorily adjusted.

Express Companies Agreement.

A supplemental agreement between the Commission and the Dominion and Canadian Express Companies has been entered into, whereby the parties may share rateably in all amounts recovered under the joint guarantee bonds.

Nipissing Central Railway.

A Private Act of the Dominion Parliament has been obtained extending the time for the completion of the railway north of New Liskeard.

Statement showing Comparison Wages paid

Location.	Occupation.	1905	1906		1907		1908		1909
		Per Month	Per Month	In-cr'se.	Per Month	In-cr'se.	Per Month	In-cr'se.	Per Month
		$ c.	$ c.		$ c.		$ c.		$ c.
North Bay	Relv'g. Despatchers.	.....	.....	.....	105 00	.....	114 00	8.6	114 00
do	Desprs. 1st year	70 90	90 00	28.6	105 00	16.7	125 00	19.	125 00
do	do 2nd year	.....	100 00	.....	115 00	15.	125 00	8.7	125 00
do	do 3rd year	.....	.....	.....	115 00	.....	137 00	19.1	137 00
do	Operators, R.S. Off..	.....	.....	.....	.....	.....	.....	.....	75 00
North Bay Jct.	Agent	45 50	55 00	22.2	75 00	36.4	90 00	20.	90 00
do	Operators	.....	.....	.....	55 00	.....	60 00	9.1	60 00
Widdifield	Agent and Operator	40 00	45 00	12.5	45 00	.....	55 00	22.2	55 00
Tomiko	do do	40 00	45 00	12.5	45 00	.....	55 00	22.2	55 00
do	Night Operators	.....	.....	.....	45 00	.....	53 00	17.8	53 00
Diver	Agent and Operator	45 00	45 00	.....	50 00	11.	55 00	10.	55 00
Redwater	Day Operator	40 00	45 00	12.5	45 00	.....	53 00	17.8	53 00
Temagami	Agent and Operator	55 00	65 00	18.2	65 00	.....	60 00	.....	60 00
Latchford	do do	45 00	55 00	22.2	70 00	27.3	80 00	14.3	80 00
do	Night Operator	.....	50 00	.....	55 00	5.	53 00	.....	53 00
Gillies Depot	Agent and Operator	.....	.....	.....	.....	.....	.....	.....	55 00
Cobalt	Agent	60 00	80 00	33.3	100 00	25.	110 00	10.	110 00
do	Opr. and Tk. Clerk.	45 00	60 00	33.3	60 00	.....	65 00	8.3	65 00
North Cobalt	Agent and Operator	.....	.....	.....	.....	.....	75 00	.....	75 00
Haileybury	Agent	60 00	70 00	16.7	70 00	.....	85 00	21.4	85 00
do	Opr. and Tk. Clerk.	45 00	60 00	33.3	60 00	.....	65 00	8.3	65 00
New Liskeard	Agent	70 00	70 00	.....	70 00	.....	90 00	28.6	90 00
do	Opr. and Tk. Clerk.	50 00	55 00	10.	60 00	9.1	65 00	8.3	65 00
do	Night Operator	.....	.....	.....	50 00	.....	60 00	20.	60 00
Uno Park	Agent and Operator	.....	55 00	.....	55 00	.....	55 00	.....	55 00
Thornloe	do do	.....	.....	.....	.....	.....	.....	.....	55 00
Earlton Jct.	do do	.....	55 00	.....	55 00	.....	55 00	.....	55 00
do	Operator	.....	.....	.....	.....	.....	.....	.....	.....
Elk Lake	Agent and Operator	.....	.....	.....	.....	.....	.....	.....	.....
Heaslip	do do	.....	.....	.....	55 00	.....	55 00	.....	55 00
Englehart	Agent	.....	70 00	.....	70 00	.....	75 00	7.1	75 00
do	Opr. and Tk. Clerk.	.....	55 00	.....	55 00	.....	60 00	9.1	60 00
do	Night Operator	.....	.....	.....	.....	.....	.....	.....	60 00
Charlton	Agent and Operator	.....	.....	.....	.....	.....	70 00	.....	70 00
Dane	do do	.....	.....	.....	.....	.....	60 00	.....	60 00
Swastika	do do	.....	.....	.....	.....	.....	.....	.....	.....
Bourkes	Operator	.....	.....	.....	.....	.....	.....	.....	.....
Matheson	Agent and Operator	.....	.....	.....	.....	.....	70 00	.....	70 00
Porquis Jct.	do do	.....	.....	.....	.....	.....	.....	.....	.....
Iroquois Falls	do do	.....	.....	.....	.....	.....	.....	.....	.....
Porcupine	do do	.....	.....	.....	.....	.....	.....	.....	.....
do	Operator	.....	.....	.....	.....	.....	.....	.....	.....
South Porcupine	Agent	.....	.....	.....	.....	.....	.....	.....	.....
do	1st Operator	.....	.....	.....	.....	.....	.....	.....	.....
do	2nd do	.....	.....	.....	.....	.....	.....	.....	.....
Schumacher	Agent and Operator	.....	.....	.....	.....	.....	.....	.....	.....
do	Operator	.....	.....	.....	.....	.....	.....	.....	.....
Timmins	Agent	.....	.....	.....	.....	.....	.....	.....	.....
do	Day Operator	.....	.....	.....	.....	.....	.....	.....	.....
do	Night Operator	.....	.....	.....	.....	.....	.....	.....	.....
Cochrane	Agent	.....	.....	.....	.....	.....	70 00	.....	70 00
do	Opr. and Tk. Clerk.	.....	.....	.....	.....	.....	.....	.....	60 00
do	Night Operator	.....	.....	.....	.....	.....	.....	.....	.....
Minimum Monthly Salary,	Agents	.....	.....	.....	45 00	.....	55 00	22.2	55 00
do	do Relv'g. Agents	.....	.....	.....	45 00	.....	58 00	28.1	58 00
do	do Operators	.....	.....	.....	45 00	.....	53 00	17.8	53 00
do	do Relv'g. Operators	.....	.....	.....	45 00	.....	53 00	17.8	53 00
Overtime Rate, Calls		45	45	.....	45	.....	50	.....	50
do do	Hours	25	25	.....	25	.....	25	.....	25
Av'ge. per cent. increase all Telegraphers		.....	.....	18.3	.....	8.2	.....	12.6	.....

N.B.—Working hours of Agents and Operators, 1905 to 1912, inclusive, 12 hours per day, reduced

Telegraphers, 1905 to 1914, inclusive.

1909	1910		1911		1912		1913		1914		Aggregate Increases
Increase	Per Month	Increase	Rate per Month	Per cent. Increase	Rate per Month	Increase	Per Month	Increase	Per Month	Increase	
	$ c.		$ c.		$ c.		$ c.	Sun-	$ c.		
....	114 00	.....	119 00	Sun 18.3	119 00	Sun- ...	125 00	days 26.1	125 00	....	42.9
....	120 00	.....	125 00	days 18.0	125 00	days ...	130 00	time 24.8	130 00	....	122.9
....	125 00	.....	130 00	pro 17.9	130 00	pro ...	130 00	and 20.	130 00	....	56.
....	142 00	3.6	142 00	rata 13.3	142 00	rata ...	150 00	half 26.8	150 00	....	56.5
....	75 00	.....	75 00	.....	75 00	.....	95 00	26.7	95 00	....	26.7
....	125 00	38.9	125 00	.....	125 00	.....	140 00	12.	140 00	....	211.1
....	65 00	8.3	75 00	15.4	75 00	.....	83 00	10.7	83 00	....	50.9
....	60 00	9.1	67 50	12.5	67 50	.....	74 50	10.4	74 50	....	86.2
....	60 00	9.1	67 50	12.5	67 50	.....	74 50	10.4	74 50	....	86.2
....	58 00	9.4	63 00	8.6	63 00	.....	68 00	7.9	68 00	....	51.1
....	60 00	9.1	67 50	12.5	67 50	.....	74 50	10.4	74 50	....	65.6
....	58 00	9.4	63 00	8.6	63 00	.....	68 00	7.9	68 00	....	70.
....	70 00	16.7	80 00	14.3	80 00	.....	80 00	.....	80 00	....	45.5
....	85 00	6.3	90 00	5.9	90 00	.....	90 00	.....	90 00	....	100.
....	58 00	9.4	63 00	8.6	63 00	.....	68 00	7.9	68 00	....	36.
....	60 00	9.1	67 50	12.5	67 50	.....	74 50	10.4	74 50	....	35.5
....	135 00	22.7	135 00	.....	135 00	.....	150 00	11.1	150 00	....	150.
....	70 00	7.7	85 00	21.4	85 00	.....	93 00	9.4	93 00	....	106.7
....	75 00	.....	79 00	5.3	79 00	.....	81 00	2.5	81 00	....	8.
....	112 50	32.4	125 00	11.1	125 00	.....	130 00	4.	130 00	....	116.7
....	70 00	7.7	77 50	10.7	77 50	.....	84 00	8.4	84 00	....	86.7
....	112 50	25.	135 00	20.0	135 00	.....	135 00	.....	135 00	....	92.9
....	70 00	7.7	77 50	10.7	77 50	.....	80 00	3.2	80 00	....	60.
....	58 00	.....	63 00	8.6	63 00	.....	68 00	7.9	68 00	....	36.
....	60 00	9.1	67 50	12.5	67 50	.....	74 50	10.4	74 50	....	35.5
....	60 00	9.1	67 50	12.5	67 50	.....	74 50	10.4	74 50	....	35.5
....	60 00	9.1	67 50	12.5	67 50	.....	79 50	17.8	79 50	....	44.5
....	58 00	.....	63 00	8.6	63 00	.....	68 00	7.9	68 00	....	17.2
....	.....	.....	.....	.....	.....	.....	95 00	.....	95 00	....	.....
....	60 00	9.1	67 50	12.5	67 50	.....	74 50	10.4	74 50	....	35.5
....	90 00	20.	100 00	11.1	100 00	.....	110 00	10.	110 00	....	57.1
....	65 00	8.3	77 50	19.2	77 50	.....	90 00	16.1	90 00	....	63.6
....	60 00	.....	70 00	16.7	70 00	.....	80 00	14.3	80 00	....	33.3
....	85 00	21.4	95 00	11.8	95 00	.....	95 00	.....	95 00	....	35.7
....	70 00	16.7	73 00	4.3	73 00	.....	75 50	3.4	75 50	....	25.8
....	.....	.....	73 00	.....	73 00	.....	81 00	11.	81 00	....	11.
....	.....	.....	63 00	.....	63 00	.....	68 00	7.9	68 00	....	7.9
....	85 00	21.4	90 00	5.9	90 00	.....	95 00	7.1	95 00	....	35.7
....	.....	.....	75 00	.....	75 00	.....	77 50	3.3	77 50	....	3.3
....	.....	.....	.....	.....	.....	.....	.....	.....	92 50	....	.....
....	.....	.....	85 00	.....	85 00	.....	90 00	5.9	90 00	....	5.9
....	.....	.....	63 00	.....	63 00	.....	68 00	7.9	68 00	....	7.9
....	.....	.....	110 00	.....	110 00	.....	110 00	.....	110 00	....	.....
....	.....	.....	75 00	.....	75 00	.....	80 00	6.7	80 00	....	6.7
....	.....	.....	63 00	.....	63 00	.....	68 00	7.9	68 00	....	7.9
....	.....	.....	85 00	.....	85 00	.....	95 00	11.8	95 00	....	11.8
....	.....	.....	63 00	.....	63 00	.....	68 00	7.9	68 00	....	7.9
....	.....	.....	85 00	.....	85 00	.....	100 00	17.6	100 00	....	17.6
....	.....	.....	63 00	.....	63 00	.....	68 00	7.9	68 00	....	7.9
....	.....	.....	63 00	.....	63 00	.....	68 00	7.9	68 00	....	7.9
....	90 00	28.6	100 00	11.1	100 00	.....	105 00	5.	105 00	....	50.
....	65 00	8.3	77 50	19.2	77 50	.....	87 50	12.9	87 50	....	45.8
....	.....	.....	63 00	.....	63 00	.....	68 00	7.9	68 00	....	7.9
....	60 00	9.1	65 00	8.3	65 00	.....	74 50	14.6	74 50	....	65.6
....	70 00	20.7	75 00	7.1	75 00	.....	78 00	4.	78 00	....	75.6
....	58 00	9.4	63 00	8.6	63 00	.....	68 00	4.	68 00	....	51.1
....	60 00	13.2	65 00	8.3	65 00	.....	68 00	4.6	68 00	....	51.1
....	50	.....	50	.....	50	.....	50	.....	.....	....	.....
....	25	.....	30	20.0	30 tim	e & half	30	time & half	.....	....	.....
....	.....	11.	.....	11.5	.....	.....	.....	8.1	.....	....	44.3

to ten hours per day, 1913, and eight hours per day for Operators, North Bay Junction.

Statement showing Comparison Wages Trainmen

Occupation	Class of Service.	1905 Rate per 100 miles.	1906 Rate per 100 miles.	1906 Per cent. Increase	1907 Rate per 100 miles.	1907 Per cent. Increase
		$ c.	$ c.		$ c.	
Conductors ..	Passenger	3 00	3 00	.....	2 44	.....
do ...	Way Freight	3 00	3 00	.....	3 50	16.7
do ...	Through Freight	3 00	3 00	.....	3 10	3.3
do ...	Pickup	3 00	3 00	.....	3 10	3.3
do ...	Work and Snowplow	3 00	3 00	.....	3 10	3.3
do ...	North Bay Yard, Day	3 00	3 00	.....	3 10	3.3
do ...	do Night	3 00	3 00	.....	3 10	3.3
do ...	Other Yards, Day	3 00	3 00	.....	3 10	3.3
do ...	do Night	3 00	3 00	.....	3 10	3.3
Baggagemen...	Passenger Train	2 00	2 00	.....	1.4152	.....
Brakemen	do do	2 00	2 00	.....	1.2932	.....
do	Way Freight	2 00	2 00	.....	2 & 2 45	11.2
do	Through Freight	2 00	2 00	.....	1 65-2 07	.....
do	Pickup	2 00	2 00	.....	1 65-2 07	.....
do	Work and Snowplow	2 00	2 00	.....	1 65-2 07	.....
do	North Bay Yard, Day	2 00	2 00	.....	1 65-2 07	.....
do	do Night	2 00	2 00	.....	1 65-2 07	.....
do	Other Yards, Day	2 00	2 00	.....	1 65-2 07	.....
do	do Night	2 00	2 00	.....	1 65-2 07	.....
Engineers	Passenger (109-110)	2 75	2 75-3 40	23.6	3 40	.....
do	do (less than 125%)	2 75	2 75-3 40	23.6	3 40	.....
do	do (more than 125%)	.....	.....	.....	.....	.....
do	do (Consolidation)	.....	.....	.....	.....	.....
do	Way Freight (109-110)	3 30	3 30-3 55	7.6	3 55	.....
do	do (less than 125%)	3 30	3 30-3 55	7.6	3 55	.....
do	do (more than 125%)	.....	.....	.....	.....	.....
do	do (Consolidation)	.....	.....	.....	.....	.....
do	Th. Freight (109-110)	3 30	3 30-3 55	7.6	3 55	.....
do	do (less than 125%)	3 30	3 30-3 55	7.6	3 55	.....
do	do (more than 125%)	.....	.....	.....	.....	.....
do	do (Consolidation)	.....	.....	.....	.....	.....
do	Work Train (109-110)	3 30	3 30-3 55	7.6	3 55	.....
do	do (less than 125%)	3 30	3 30-3 55	7.6	3 55	.....
do	do (more than 125%)	.....	.....	.....	.....	.....
do	do (Consolidation)	.....	.....	.....	.....	.....
do	Yard	3 30	3 30-3 55	7.6	3 55	.....
do	Repairs and Watching	1 50	1 50	.....	1 50	.....
Firemen	Passenger (109-110)	2 00	2 00-2 10	5.	2 10	.....
do	do (less than 125%)	2 00	2 00-2 10	5.	2 10	.....
do	do (more than 125%)	.....	.....	.....	.....	.....
do	do (Consolidation)	.....	.....	.....	.....	.....
do	Way Freight (109-110)	2 00	2 00-2 20	10.	2 20	.....
do	do (less than 125%)	2 00	2 00-2 20	10.	2 20	.....
do	do (more than 125%)	.....	.....	.....	.....	.....
do	do (Consolidation)	.....	.....	.....	.....	.....
do	Th. Freight (109-110)	2 00	2 00-2 20	10.	2 20	.....
do	do (less than 125%)	2 00	2 00-2 20	10.	2 20	.....
do	do (more than 125%)	.....	.....	.....	.....	.....
do	do (Consolidation)	.....	.....	.....	.....	.....
do	Work Train (109-110)	2 00	2 00-2 20	10.	2 20	.....
do	do (less than 125%)	2 00	2 00-2 20	10.	2 20	.....
do	do (more than 125%)	.....	.....	.....	.....	.....
do	do (Consolidation)	.....	.....	.....	.....	.....
do	Yard	2 00	2 00-2 20	10.	2 20	.....
do	Repairs and Watching	1 50	1 50-	.....	1 50	.....
Average per cent. Increase, Conductors		.....	.....	.....	.....	2.4
do do Brakemen		.....	.....	.....	.....	.....
do do Engineers		.....	.....	10.1	.....	.....
do do Firemen		.....	.....	8.2	.....	.....
do do Trainmen and Enginemen		.....	.....	4.8	.....	.....

N.B.—Decrease in rate for Conductors and Brakemen in Passenger Service due to increased speed of approximately 50% in amounts

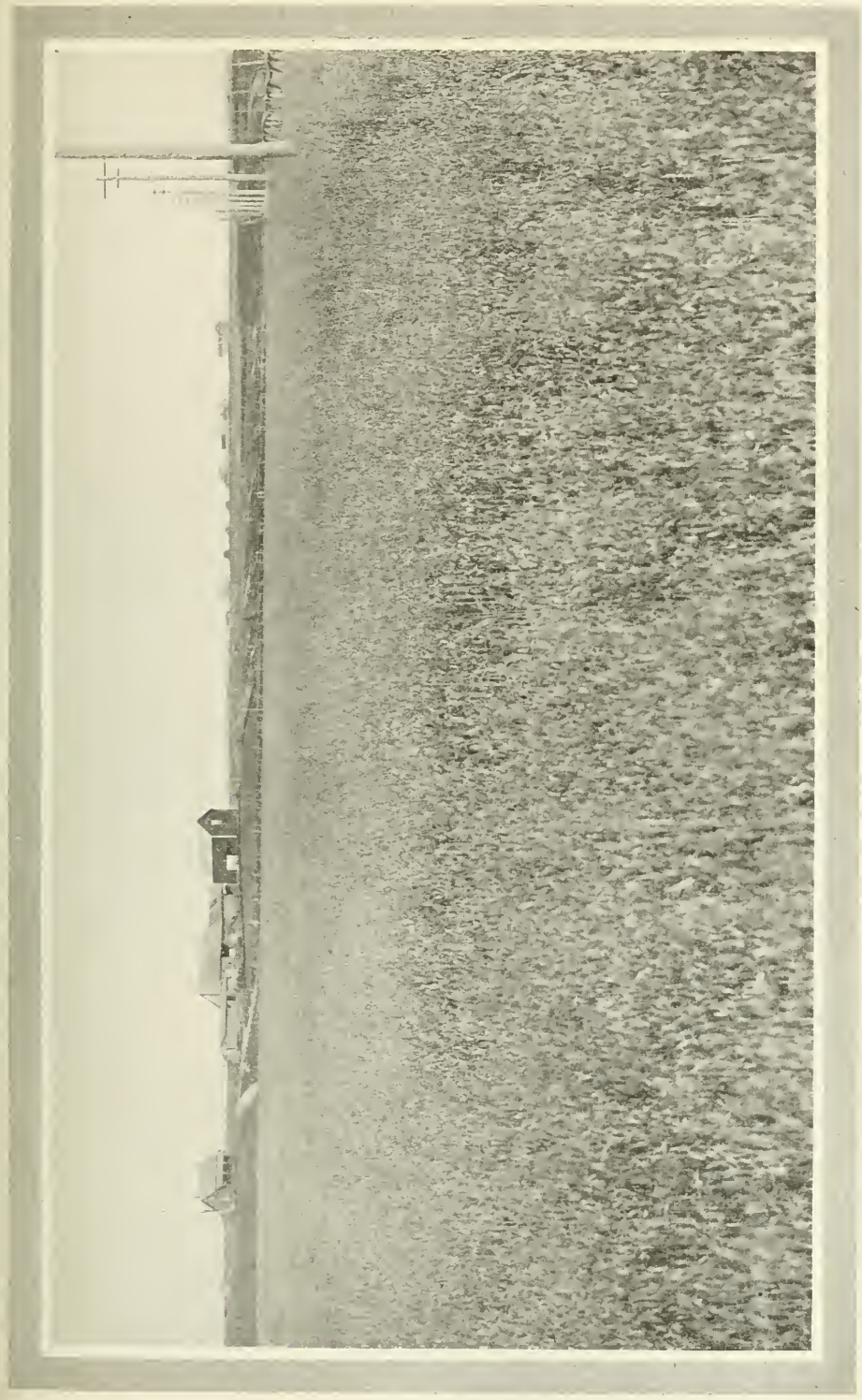
and Enginemen, 1905 to 1914, inclusive.

1908		1909		1910		1911		1912		1913		1914		
Rate per 100 miles.	Per cent. Increase.	Rate per 100 miles.	Per cent. Increase.	Rate per 100 miles.	Per cent. Increase.	Rate per 100 miles.	Per cent. Increase.	Rate per 100 miles	Per cent. Increase.	Rate per 100 miles.	Per cent. Increase.	Rate per 100 miles.	Per cent. Increase.	Aggregate Increase.
$ c.		$ c.		$ c.		$ c.		$ c.		$ c.		$ c.		
2 44	.....	2 44	....	2 44	....	2 68	9.8	2 68	....	2 68	....	2 90	8.2	.....
3 50	.....	3 50	....	3 50	....	3 97½	13.6	3 97½	....	3 97½	....	4 50	13.2	50.
3 10	.....	3 10	....	3 10	....	3 63	17.1	3 63	....	3 63	....	4 00	10.2	33.3
3 10	.....	3 10	....	3 10	....	3 80	22.6	3 80	....	3 80	....	4 50	10.8	50.
3 10	.....	3 10	....	3 10	....	3 63	17.1	3 63	....	3 63	....	4 00	16.2	33.3
3 10	.....	3 10	....	3 10	....	3 70	19.4	3 70	....	3 70	....	3 80	2.7	26.7
3 10	.....	3 10	....	3 10	....	3 90	25.8	3 90	....	3 90	....	4 00	2.6	33.3
3 10	.....	3 10	....	3 10	....	3 60	16.1	3 60	....	3 60	....	3 80	5.6	26.7
3 10	.....	3 10	....	3 10	....	3 80	22.6	3 80	....	3 80	....	4 00	5.3	33.3
1.4152	.....	1.4152	....	1.4152	....	1 55	9.5	1 55	....	1 55	....	1 65	6.5	.....
1.2932	.....	1.2932	....	1.2932	....	1 50	16	1 50	....	1 50	....	1 60	6.7	.....
2 & 2 45	.....	2 & 2 45	....	2 45	10.1	2 70	10.2	2 70	....	2 70	....	3 00	11.1	50.
1 65-2 07	.....	1 65-2 07	....	2 07	11.3	2 42	16.9	2 42	....	2 42	....	2 67	10.3	33.5
1 65-2 07	.....	1 65-2 07	....	2 07	11.3	2 56	23.7	2 56	....	2 56	....	3 00	17.2	50.
1 65-2 07	.....	1 65-2 07	....	2 07	11.3	2 42	16.9	2 42	....	2 42	....	2 67	10.3	33.5
1 65-2 07	.....	1 65-2 07	....	2 60	39.8	3 40	30.8	3 40	....	3 40	....	3 50	2.9	75.
1 65-2 07	.....	1 65-2 07	....	2 60	39.8	3 60	38.5	3 60	....	3 60	....	3 70	2.8	85.
1 65-2 07	.....	1 65-2 07	....	2 60	39.8	3 30	26.9	3 30	....	3 30	....	3 50	6.1	75.
1 65-2 07	.....	1 65-2 07	....	2 60	39.8	3 50	34.6	3 50	....	3 50	....	3 70	5.7	85.
3 55	4.4	3 55	....	3 55	....	3 74	5.3	3 74	....	4 11	9.9	4 11	....	49.5
3 55	4.4	3 55	....	3 55	....	3 80	7	3 80	....	4 18	10	4 18	....	52.
.....	.....	.....	.....	.....	.....	3 90	....	3 90	....	4 29	10	4 29	....	10.
.....	.....	.....	.....	.....	.....	.....	....	4 07	....	4 48	10	4 48	....	10.
4 15	16.9	4 15	....	4 15	....	4 40	6	4 40	....	4 84	10	4 84	....	46.7
4 15	16.9	4 15	....	4 15	....	4 50	8.4	4 50	....	4 95	10	4 95	....	50.
.....	.....	.....	.....	.....	.....	4 65	....	4 65	....	5 11	9.9	5 11	....	9.9
.....	.....	.....	.....	.....	.....	.....	....	4 90	....	5 39	10	5 39	....	10.
3 95	11.3	3 95	....	3 95	....	4 12	4.3	4 12	....	4 53	10	4 53	....	37.3
3 95	11.3	3 95	....	3 95	....	4 23	7.1	4 23	....	4 65	10	4 65	....	40.9
.....	.....	.....	.....	.....	.....	4 35	....	4 35	....	4 79	10	4 79	....	10.
.....	.....	.....	.....	.....	.....	.....	....	4 51	....	4 96	10	4 96	....	10.
3 65	2.8	3 65	....	3 65	....	3 80	4.1	3 80	....	4 18	10	4 18	....	26.7
3 65	2.8	3 65	....	3 65	....	3 90	6.8	3 90	....	4 29	10	4 29	....	30.
.....	.....	.....	.....	.....	.....	4 00	....	4 00	....	4 40	10	4 40	....	10.
.....	.....	.....	.....	.....	.....	.....	....	4 29	....	4 73	10.3	4 73	....	10.3
3 50	.....	3 50	....	3 50	....	3 90	11.4	3 90	....	4 29	10	4 29	....	30.
3 50	133.3	3 50	....	3 50	....	3 85	10	3 85	....	4 20	9.1	4 20	....	180.
2 20	4.8	2 20	....	2 20	....	2 25	2.3	2 25	....	2 47	9.8	2 47	....	23.5
2 20	4.8	2 20	....	2 20	....	2 42	10	2 42	....	2 66	9.9	2 66	....	33.
.....	.....	.....	.....	.....	.....	2 53	....	2 53	....	2 78	9.9	2 78	....	9.9
.....	.....	.....	.....	.....	.....	.....	....	2 70	....	2 97	10	2 97	....	10.
2 60	18.2	2 60	....	2 60	....	2 60	....	2 60	....	2 86	10	2 86	....	43.
2 60	18.2	2 60	....	2 60	....	2 80	7.7	2 80	....	3 08	10	3 08	....	54.
.....	.....	.....	.....	.....	.....	3 00	....	3 00	....	3 30	10	3 30	....	10.
.....	.....	.....	.....	.....	.....	.....	....	3 15	....	3 46	9.8	3 46	....	9.8
2 30	4.5	2 30	....	2 30	....	2 53	10	2 53	....	2 78	9.9	2 78	....	39.
2 30	4.5	2 30	....	2.30	....	2 64	14.8	2 64	....	2 90	9.8	2 90	....	45.
.....	.....	.....	.....	.....	.....	2 75	....	2 75	....	3 02	9.8	3 02	....	9.8
.....	.....	.....	.....	.....	.....	.....	....	2 97	....	3 27	10.1	3 27	....	10.1
2 30	4.5	2 30	....	2 30	....	2 37	3	2 37	....	2 61	10.1	2 61	....	30.5
2 30	4.5	2 30	....	2 30	....	2 48	7.8	2 48	....	2 73	10.1	2 73	....	36.5
.....	.....	.....	.....	.....	.....	2 58	....	2 58	....	2 84	10.1	2 84	....	10.1
.....	.....	.....	.....	.....	.....	.....	....	2 80	....	3 08	10	3 08	....	10.
2 20	.....	2 20	....	2 20	....	2 45	11.4	2 45	....	2 69	9.8	2 69	....	34.5
2 50	66.7	2 50	....	2 50	....	2 50	....	2 50	....	2 75	10	2 75	....	83.3
.....	.....	.....	.....	.....	.....	.....	18.4	.....	.....	.....	.....	.....	8.5	31.5
.....	.....	.....	.....	.....	21.2	.....	23.8	.....	.....	.....	.....	.....	7.6	45.
.....	13.4	.....	.....	.....	.....	.....	7	.....	.....	.....	10	.....	.....	27.3
.....	11.4	.....	.....	.....	.....	.....	6.6	.....	.....	.....	10	.....	.....	24.5
.....	6.9	.....	.....	.....	3.6	.....	13.1	.....	.....	.....	6.7	.....	2.5	28.9

of trains, longer divisions and a consequent greater mileage made by crews, making an increase earned at present over year 1905.

Statement Showing Comparison Maintenance of Way Employees, 1905 to 1914 inclusive

Occupation.	1905 Per Hour.	1906 Per Hour.	1907 Per Hour.	1908 Per Hour.	1909 Per Hour.	1910 Per Hour.	1911 Per Hour.	1912 Per Hour.	1913 Per Hour.	1914 Per Hour.	Per cent. Increase.
	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	
Yard Foreman, North Bay	22½–25	22½–25	22½–25	22½–25	25 –25½	25½	25½–29½	29½	29½	29½	22.1
" " Latchford	19 –22½	19 –22½	19 –22½	19 –22½	22½–23	23–24	24 –27½	27½	27½	27½	32.5
" " Cobalt	19 –22½	19 –22½	19 –22½	19–22½, 23½	23½–24	24	24 –27½	27½	27½	27½	32.5
" " Haileybury	19 –22½	19 –22½	19 –22½	19 –22½	22½–24	24	24 –27½	27½	27½	27½	32.5
" " New Liskeard	22½–25	22½–25	22½–25	22½–23½	23½–24	24	24 –27½	27½	27½	27½	15.8
" " Englehart	.....	25	25	25	25 –25½	25½	25½–29½	29½	29½	29½	16.
" " Matheson	.....	.....	22½	22½–23½	23½–24	24	24 –27½	27½	27½	27½	22.2
" " Timmins	.....	.....	.....	.....	.....	.....	26½	26½	26½	27½	3.8
" " Cochrane	.....	.....	.....	.....	25 –25½	25½	25½–29½	29½	29½	29½	16.8
All other Section Foremen	19 –22½	19 –22½	19 –22½	19 –22½	22½–23	23½	23½–26	26½	26½	26½	27.2
Assistant Yard Foremen	.....	20 –22½	20 –22½	20 –22½	20 –22½	22½	22½–25½	25½	25½	25½	20.
Extra Gang Foremen	22½–30	22½–30	22½–30	22½–30	22½–32½	30 –36½	30 –36½	30 –36½	30 to 39½	30 –39½	32.4
Pit and Ditcher Foremen	.....	.....	32½	32½–	$80. & 90.	$80.00	$80. & 85	$85.00	$90.00	$90.00	per month
Assistant Extra Gang Foremen	20 –22½	20 –22½	20 –22½	20 –22½	20 –22½	22½–25	22½–25	22½–25	22½–25	22½–25	11.8
Sectionmen	14 –17½	15 –17½	15 –17½	15 –17½	15 –16½	16½	16½–19	19	19	19	20.6
Extra Gang Laborers	15 –20	15 –20	15 –20	15 –20	15 –20	17½	17½	17½–19	19 –20	17½–20	7.1
Snowplow and Flanger Foremen	.....	29 –29½	29 –29½	29 –29½	29½–33	33	33 –37	37	37	37	26.5
B. and B. Foremen	25 –35	25 –35	25 –35	25 –35	25 –35	25 –32½	25 –37	33½–37	33½–37	33½–37	17.5
Bridgemen	20 –22½	20 –22½	20 –22½	20 –22½	20 –22½	25	23 –29	23 –29	23 –29	23 –29	22.4
Carpenters	22½–27½	22½–27½	22½–27½	22½–27½	22½–27½	22½–25	22½–29	23 –29	23 –29	23 –29	4.
Bridge Laborers and Handymen	15 –17½	15 –17½	15 –17½	15 –17½	15 –17½	15 –22½	15 –22½	20 –22½	20 –22½	20 –22½	30.8
Average Increase of Maintenance of Way Employees.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20.1



Farm of S. Willows, East Road, New Liskeard.

ANNUAL REPORT OF CHIEF ENGINEER AND SUPERINTENDENT OF MAINTENANCE

S. B. CLEMENT, C. E. & S. OF M.

Year Ending October 31st, 1914.

A. J. McGee, Esq.,

Secretary-Treasurer,

Toronto, Ontario.

Dear Sir,—I beg to submit the following annual report, as Chief Engineer and Superintendent of Maintenance, for the fiscal year ended October 31st, 1914.

New Lines, Surveys and Construction.

Iroquois Falls Branch:

At the beginning of the year, a freight service was being operated on this branch, although the terminus at Iroquois Falls was not completed. During the year a terminal yard has been built on the Iroquois Falls station grounds, also the industrial spur sidings necessary to serve the plant of the Abitibi Power and Paper Co. These latter were built at the expense of the Company. A frame combination passenger station and Agent's residence and a frame section foreman's house were built under contract by Sherwood & Sherwood. A frame freight shed and one-stall engine shed were built by the Bridge and Building Department.

James Bay Surveys:

The collection of information, with respect to navigation and harbors on James Bay, particularly the Estuary of the Moose River and the territory between Moose Factory and Cochrane, has been continued. Mr. W. R. Maher, locating engineer, made two trips to James Bay. On the first, leaving Cochrane on March 24th, and returning May 30th, he studied ice and flood conditions at Moose Factory and on the second, leaving August 1st, and returning September 16th, he made additional soundings and surveys required to supplement the information previously collected. The Commission's Consulting Engineer, J. G. G. Kerry, has prepared a very complete report, in which are included the results of the various investigations carried on by the Commission.

Additions and Betterments of Road.

Change of Line at Cochrane:

In order to obtain a convenient operating connection with the National Transcontinental Railway yards at Cochrane to be used by Grand Trunk Railway trains when operating over the T. & N. O. Rly. under the Running Rights Agreement, it was necessary to divert two and one-half miles of main track, south of Cochrane. A contract for the grading was awarded to Messrs. MacDougall and McCluskey, of Cochrane. The track was laid and ballasted by the Track Department. At the same time the divisional and local freight yards were re-arranged and ample facilities have been provided to handle the traffic, that it is anticipated will result from the operation of the N. T. Rly. between Cochrane and Winnipeg in 1915.

Additional Yard Facilities Completed During the Year.

Widdifield:

A through siding 603 ft. long with capacity for 8 cars for shipment of forest products.

Riddle:

The through passing siding extended 1,128 ft. with capacity for 45 cars. A large quantity of pulpwood will be shipped from Riddle this winter.

Cobalt:

An independent track through the Cobalt yard to Kerr Lake Junction has been assigned to the Nipissing Central Railway. This track is on the east side of the station grounds next to Cobalt Lake. The movements of the electric cars are confined to these tracks and do not conflict with the operation of the T. & N. O. Railway. These changes were made the occasion of a general re-arrangement of the Cobalt yard. These changes simplify the operation of the yard and increase the accommodation on sidings for receipt and shipment of freight. An independent through siding 514 ft. long to hold 6 cars was built at the north end of the yard for shipments of high explosives. This siding is a great convenience to the mines and explosive companies and reduces the danger to the public by avoiding the necessity of handling the explosives through the town.

New Liskeard:

The New Liskeard spur has been extended to the Dominion Government wharf on Lake Temiskaming. A short 8-car siding from the spur at the end of Armstrong Street provides accommodation for shipment of products brought in by train. Unfortunately, through the failure of the controlling dam at the foot of the lake, the water was too low to permit boats to dock at the wharf. The dam is now being repaired and it is expected that next season the water will be maintained at the regulated level and that large quantities of forest and agricultural product will be shipped from the New Liskeard wharf.

Additional land for the enlargement of the station grounds has been purchased.

Uno Park:

The spur public freight siding has been extended and made a through siding. The accommodation has been increased from 12 cars to 32 cars. Roadways have been graded and gravelled and piling ground for forest products provided.

Thornloe:

The passing siding was lengthened and a new local freight siding 1,213 ft. long to hold 25 cars was provided. Additional land for station grounds was purchased. Station roadways, graded and gravelled, and piling ground for forest products prepared.

M.P. No. 132:

A public spur siding was extended 198 ft. This siding now holds 9 cars and roadway was graded, providing good accommodation to settlers unable to draw their pulpwood and timber to Earlton or Heaslip.

Wawbewawa:

The short spur siding has been extended and made a through siding with accommodation for 15 cars. Roadways were gravelled.

M.P. No. 145½:

A spur siding to hold 5 cars has been built. This is for the benefit of settlers to save them the expense of hauling their forest products to Wawbewawa, two miles to the south, or Krugerdorf, one mile to the north, where ample shipping facilities had already been provided.

M.P. No. 149½:

A spur siding to hold 4 cars has been built, to assist the settlers and save them the expense of hauling to Krugerdorf, three miles to the south, or to Mindoka, one and one-half miles to the north, where ample shipping facilities had already been furnished.

Wataybeag:

A short spur siding was extended and made a through siding with capacity for 23 cars. Extra land for station grounds was purchased, roadways graded and piling ground for pulpwood, etc., provided.

Homer:

Additional land was purchased and cleared and stumped for piling ground for settlers.

Nushka:

Additional land was purchased and cleared and stumped for piling ground for settlers.

Porquis Jct.:

An additional through siding, 750 ft. long, was built to serve the new freight shed. Station grounds were stumped and graded and roadways gravelled.

Kenabeek:

A spur siding, 622 ft. long, to hold 12 cars, was built to provide accommodation for settlers shipping pulpwood, timber, etc. Piling grounds were stumped and roadways graded.

M.P. 13.5, *Porcupine Branch*:

A spur siding, 562 ft. long, to hold 10 cars, to provide shipping facilities for settlers, pulpwood, etc.

Additional Yard Facilities Under Construction at Close of Year.

Earlton Jct.:

New town siding, roadways and piling ground.

Chamberlain:

Roadway and piling ground graded, etc.

Nahma:

Roadways and piling ground graded.

ELK LAKE BRANCH.

McCool:

Roadways and piling ground graded, etc.

Osseo:

Roadways and piling ground graded, etc.

Mountain Chutes:

Roadways and piling ground graded, etc.

M.P. No. 19:

Siding extended.

Wabun:

Roadways and piling ground graded, etc.

INDUSTRIAL TRACKS CONSTRUCTED.

Temagami:

Private spur siding, 533 ft. long, for Wm. Milne & Sons, at M.P. 73.6. This firm has bought a large quantity of fire killed timber in the Temagami Reserve. All this timber will be cut this coming winter and logs shipped to their mill at Trout Lake.

Latchford:

The Canadian Pulp and Lumber Co., a subsidiary of the Canadian American Wood and Pulp Co., of Niagara Falls, N.Y., has enlarged its rossing plant and expects to ross about 30 cars of pulpwood per day in transit, from Temiskaming points to Niagara Falls.

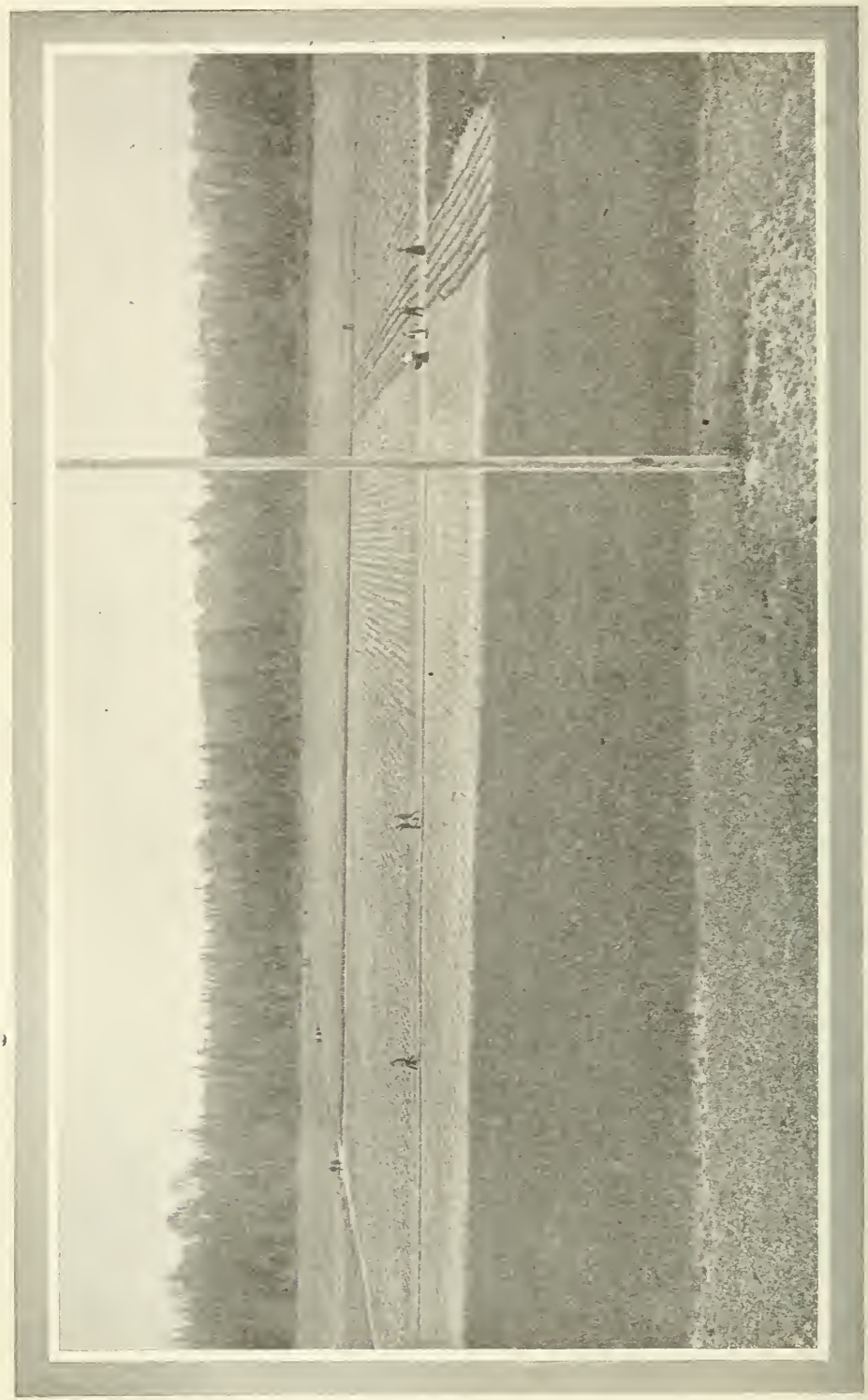
Two private spur sidings to serve the rossing plant have been constructed.

Gillies Depot:

A private siding on the bank of the Montreal River was built for Gillies Bros. to unload in the river logs railed from Rib Lake.

Monteith:

A private siding, 363 ft. long, to hold 6 cars, for Geo. D. Hamilton & Co., on the south side of Driftwood River. This firm is building a saw-mill on the river.



Experimental Farm, Monteith.

Nellie Lake:

A private spur siding at M.P. 227 for Fred Brown. Siding 270 ft. long to hold 3 cars for shipment, pulpwood, etc.

A private spur siding at M.P. 228 for Malkin and Co. Siding is 950 ft. long and will hold 20 cars. Malkin and Co. operate a saw-mill and ship forest products.

Porquis Jct.:

A private siding at M.P. 5.5, Iroquois Falls Branch. Siding 331 ft. long, to hold 5 cars, for shipment forest products by settlers interested.

Timmins:

A private siding 448 ft. long to the Canadian Mining and Finance Company's power plant on Gillies Lake.

New frame combined passenger stations and agent's residences were built at Heaslip and Elk Lake, under contract by Sherwood & Sherwood.

New frame agent's residences were built at Charlton, South Porcupine and Timmins, under contract, by Sherwood & Sherwood.

New section foreman's house was built at Timmins, under contract, by Sherwood & Sherwood.

Shelter stations were built at the following flag stations: Lounsburys, McCool, Osseo, Kenabeek, Wabun, Belleek, Connaught.

The following indicates progress in the elimination of timber bridges and trestles:

Replaced by Steel Bridges	974	lin. ft.
Concrete Bridges	206	lin. ft.
Embankment	452	lin. ft.
Total Timber Bridges and Trestles eliminated	1,632	lin. ft.

The following culverts were constructed:

Concrete tile	506	lin ft.
Timber	117	lin. ft.
Corrugated Iron	1,245	lin. ft.

Corrugated iron culverting chiefly under road and highway crossings. Seldom used as under roadbed.

Additional tile drains to underdrain roadbed aggregated 4.81 miles. Main track widened by train filling and by clay from line cuttings aggregated 86.5 miles of line.

Additional right-of-way fencing, to the extent of 21.8 miles of fence, was constructed.

Seven public and four private grade road crossings were built.

Details of those portions of above betterments that were made by Commission's forces will be found in the accompanying reports of the General Roadmaster and Bridge and Building Master.

Additions and Betterments of Equipment.

The following new all-steel equipment has been placed in service:

3—First-class Coaches.
2—Second-class Coaches.
3—Combination First and Second class Coaches.
2—Baggage and Express Cars.
3—Mail and Express Cars.

A number of the older and lighter wooden passenger coaches have been improved by the installation of high speed brakes and higher capacity friction draft gear.

Superheaters are being installed in the Pacific type locomotives.

Full particulars of these and other minor betterments will be found in the attached report of the Master Mechanic.

Maintenance of Way.

The track, roadbed, right-of-way and station grounds and buildings and bridges have been maintained at a high standard.

The rail on 11.84 miles of main track was changed and relaid with new rail of the same section, viz.: 80 No. A.S.C.E. Continuous rail joints were used with the new rail in place of the lighter angle bars.

Tie renewals were as follows:

Main track	88,330
Sidings	7,376
Total	95,706

19 sets of switch ties were renewed.

27.75 miles of main track and 1.35 miles of passing sidings were reballasted with good quality of gravel ballast.

Particular attention has been paid to cleaning right-of-way. Very liberal appropriations were made by the Commission. 139.5 miles of right-of-way were thoroughly cleared of all stumps, logs, brush, etc. All rock and clay cuts on over 72 miles of main track were thoroughly cleaned and ditched. The material removed from the cuttings was used to widen main track embankments. It might be pointed out that all this work constitutes a distinct betterment to the property, but was done on maintenance account.

Details of the work involved in the above will be found in the accompanying reports of the General Roadmaster and Bridge and Building Master.

General Remarks.

It is very gratifying to be able to report that the physical condition of the Commission's property has been maintained at a constantly improving standard. The appropriations the Commission has made for the maintenance of its road and equipment have not only met the repairs necessary for safe operation, but have been sufficient to make substantial progress towards the high standard of maintenance and operation the Commission has in view. The timber bridges are rapidly being replaced by steel structures or embankments, and the Commission's programme of betterments provides for the removal of all timber structures in

the next two or three years. The passenger equipment and passenger stations are all modern and a credit to any railway.

A "Safety First" organization was established and has already resulted in the correction of a number of unsafe conditions and practices, through the interest it has developed among the employees.

The chief engineer wishes to testify to the faithful, loyal and efficient service rendered to the Commission by the employees.

Accompanying will be found the Master Mechanic's report of Motive Power and Car Department, the General Roadmaster's report of Road Department, and the Bridge and Building Master's report of Bridge and Building Department.

The following table shows mileage of track owned by the Commission:

MILES OF RAILWAY OWNED AND OPERATED.

	Oct. 31, 1914.	Oct. 31, 1913.
First track	328.60 mls.	333.44 mls.
Second track	1.70 mls.	
Yard Track and Sidings	95.39 mls.	87.93 mls.
Private and Industrial Sidings	12.63 mls.	11.40 mls.
	438.32 mls.	432.77 mls.

OWNED BUT NOT OPERATED.

Nipissing Junction Spur	2.10 mls.	2.10 mls.

OPERATED BY NIPISSING CENTRAL RAILWAY.

Main Track	10.45 mls.	5.85 mls.
Yard Track and Sidings	1.14 mls.	0.36 mls.
Private Sidings	1.05 mls.	0.54 mls.
	12.64 mls.	6.75 mls.

ACCIDENTS.

The following is a list of personal injuries relating to Departments, under my jurisdiction, occurring during the year:

1913.

December 20th, Horace Reid, Carpenter, Haileybury, while coming down off a scaffold, tripped over a ladder and fell a short distance, sustaining slight bruises

1914.

February 23rd, Lorne Wilson, painter's helper, North Bay Jct., was slightly bruised on the leg above the knee.

March 11th, G. Crego, laborer, Latchford, was slightly scalded.

March 9th, Adam Edwards, supervisor, was severely bruised while riding on train No. 47, which was derailed at M.P. 96½.

March 26th, Chas. Empie helper, North Bay shops, was struck by a hammer and had his jaw fractured.

April 4th, John Kirkbride, sectionman, Ramore, had the third finger of his left hand crushed, necessitating amputation at the root of the nail.

May 9th, Chas. Cadden, tenderman, North Bay Jct. shops, was slightly cut on the chin.

May 29th, E. A. Schlievert, extra gang laborer, was struck on the left arm by a spent bullet, while walking in Cobalt station yard. Injury very slight.

June 9th, Mike Sloe. sectionman, M.P. 85, was overcome by heat and fell, inflicting a small cut on his forehead.

June 29th, R. W. Beddingfield, cranesman, Tomiko Ballast Pit, fell from a flat car and cracked one of his ribs.

July 2nd, F. Delledonne, laborer, in steel gang, M.P. 22, had the little finger of his left hand slightly crushed while handling a rail.

July 27th, C. Allevate, laborer in extra gang, M.P. 154, slipped while descending the side of a rock excavation and cut his head.

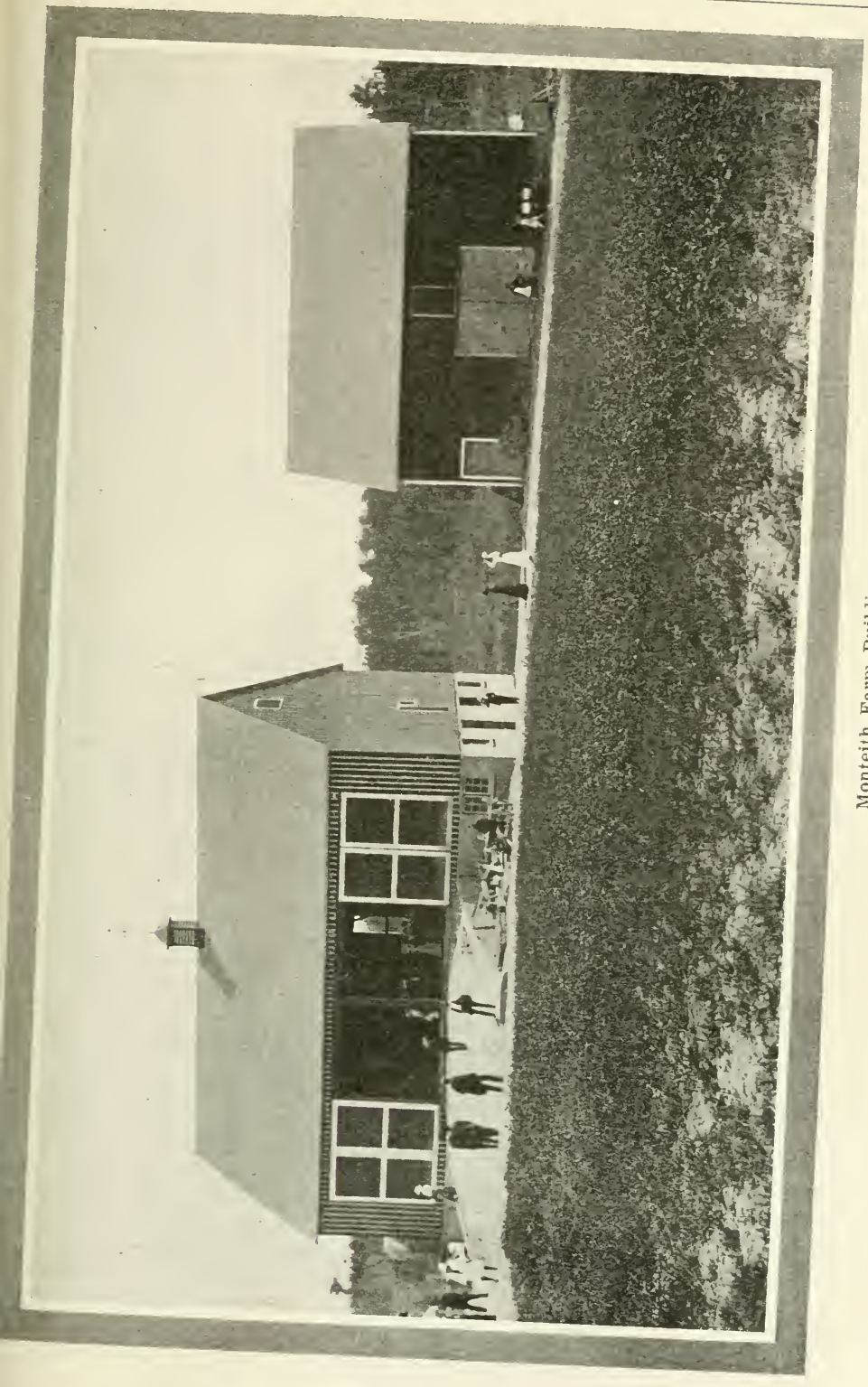
August 10th, Thos. Galloway, car repairer, North Bay Jct., was slightly injured in the eye by a hot coal.

August 20th, A Walter, extra gang laborer, Osborne, was cut in the left leg by a piece of flying steel.

August 26th, Frank Spina, laborer, had two of his fingers jammed while loading rails at Cochrane.

October 29th, John Felice, extra gang foreman, was slightly injured by a piece of falling rock, which had been dynamited near Schumacher.

Respectfully submitted,
S. B. Clement.



Monteith Farm Buildings.

MOTIVE POWER AND CAR DEPARTMENT

Annual Report for Year Ending October 31st, 1914, of Mr. Thos. Ross, Master Mechanic.

New Rolling Stock.

In June the Pullman Company started to make delivery of the steel coaches for which contract was awarded them August 29th, 1913. The first lot was received at North Bay Junction, June 23rd, via. G. T. R., and comprised one complete train consisting of one mail and express car No. 201, one baggage and express car No. 211, one second class coach No. 221, one combination second and first class smoking coach No. 231, and one first class coach No. 241. June 24th, baggage and express car No. 212 and second class coach No. 222 were received via. G. T. R., and on July 1st the remainder of the order consisting of mail and express cars No. 202 and 203, combination second and first class coaches No. 232 and 233, and first class coaches No. 242 and 243 were delivered via. C. P. R.

All cars were delivered complete in every respect for service with the exception of the electric lighting dynamo, batteries, switchboard and wiring thereto. This apparatus was supplied by the J. Stone Co., Ltd., and applied by the T. & N. O. Ry. The first lot of these cars, consisting of baggage and express car No. 212, combination car No. 233, and first class car No. 243, were completed and put in service on train No. 46, North Bay to Toronto, on August 3rd, 1914.

The following is a general description of each of the different classes, from which it will be seen that they are of the most modern steel construction and first class equipment throughout.

Mail and Express Cars.—Length over end sills, 60 ft.; centre to centre of trucks, 42 ft.; length of mail compartment, 30 ft.; width over side sheets, 10 ft.; width over all at eaves, 10 ft. 2⅞ in.; width deck opening, 5 ft. 10 in.; width deck over eaves, 6 ft. 8⅝ in.; height from rail to top of roof sheets, 14 ft. 1¼ in. The underframing consists of Commonwealth Steel Co's combined cast steel bolsters and platform with fish belly type, centre still composed of two 5-16 in. plates 26 in. deep at centre, spaced 18 in. apart, with two 5 in. by 3½ in. by ½ in. angles on the outside, and ⅜ in. by 30 in. cover plate at top, and four 3 in. by 3 in. by ⅜ in. angles at bottom. Cross ties, two, Commonwealth Steel Co's cast steel, spaced 6 ft. 3 in. each side of centre of car, with cast steel centre sill spacers, also one additional cast steel centre sill spacer at centre of car. Sides consist of a 3-16 in. plate, 34 in. high, with 44 in. by 1⅜ in. by 7-16 in. dropper bar on outside at top, and at the bottom on the inside a 4 in. by 4 in. by 5-16 in. angle rivetted to a 5 in., 11.6 lb. Z bar, the latter being rivetted to the cast steel bolsters and cross ties. The 3-16 in. plates form the side sheathing of car below window sills, and the openings through same for the baggage and mail side doors are suitably reinforced. The end framing consists of two 12 in.—31.5 lb. I beams, 23½ in. each side of centre line of car, with two 5 in.-8.2 lb. Z bar intermediate posts, and the corner posts are each composed of a 4 in.-8.2 lb. Z bar and a 6 in. by 4 in. by ⅜ in. angle. The side sheathing above the belt and the end sheathing is ⅛in. plate. The roof is of steel .078 in. thick on upper deck and .063 in. on lower deck with pullman standard roof joints. The inside side and end finish of the mail end is .063 in. flat steel plate with 3-16 in. fireproof agasote ceilings to upper and lower decks, while the express end is finished in .038 in. corrugated steel through-

out with 3-16 in. agasote ceiling to upper deck and .038 in. steel to lower deck. The floor is of 1¼ in. matched maple with two air spaces and two courses of insulation below. The insulation used is ¾ in. fireproof Flaxlinum on all outside sheets and ¾ in. Salamander to all inside sheets, these latter being also insulated from the framing of car wherever possible with ⅛ in. agasote. Other items are as follows: Six wheel Commonwealth Cast Steel trucks with 36 in. Schoen solid steel wheels, McCord journal boxes with pinless covers, Vanadium steel springs, Simplex brake beams, journal bearings, Canadian Bronze Co's make; Westinghouse air brake Schedule LN-1812, Westinghouse friction draft gear, Tower couplers, National centering device, Forsyth friction buffing gear, Ajax diaphragms, Stone Co's electric lighting system (24 volts), 10 Automatic Ventilator Co's intake and exhaust ventilators, Gold Car Heating Co's straight steam heating system with electric thermostat control (also Chicago Car Heating Co's No. 800 stove as auxiliary in mail end), equipment of mail end steel throughout, arranged to conform to the U. S. R. M. S. specifications and plans for 30 ft. mail compartment cars; hand brakes, steps, handholds, etc., to Railway Commission's standards.

Baggage and Express Cars.—Length over end sills, 60 ft.; centre to centre of trucks, 42 ft.; width over side sheets, 10 ft.; width over all at eaves, 10 ft. 2⅞ in.; width deck opening, 5 ft. 10 in.; width over eaves of deck, 6 ft. 8⅝ in.; height from rail to top of roof sheets, 14 ft. 1¼ in. The general description of the mail and express cars, with the omission of that re the mail end, is also applicable to these cars, the same design and equipment being followed throughout.

Passenger Coaches.—The three classes of cars under the above heading, i.e., second class, combination first and second class smoking, and first class cars are practically similar, the main differences being in the seat upholstering and the addition of a partition in the smoking car. Length over end sills, 71 ft.; centre to centre of trucks, 55 ft.; width over side sheets, 10 ft.; width over all at eaves, 10 ft. 2⅞ in.; width deck opening, 5 ft. 10 in.; width deck over eaves, 6 ft. 8⅝ in.; height from rail to top of roof sheets, 14 ft. 1¼ in.; seating capacity 80. The underframing consists of Commonwealth Steel Co's combined cast steel bolsters and platforms with fish belly type centre sill composed of two 5-16 in. plates 26 in. deep at centre, spaced 18 in. apart, with two 5 in. by 3½ in. by ½ in. angles on the outside and ⅜ in. by 30 in. cover plate at top, and at the bottom four 3 in. by 3 in. by ⅜ in. angles. Cross ties, two, Commonwealth Steel Co's cast steel, spaced 12 ft. 9 in. each side of centre of car with cast steel centre sill spacers, also one additional cast steel centre sill spacer at centre of car. Sides consist of a 3-16 in. plate 34 in. high, with 4 in. by 1⅜ in. by 7-16 in. dropper bar on outside at top, and at the bottom on the inside a 4 in. by 4 in. by 5-16 in. angle rivetted to a 5 in.-11.6 lb. Z bar, the latter being rivetted to the cast steel bolsters and cross ties. These 3-16 in. plates form the side sheathing of the car below the windows, the sides above being ⅛ in. plate. The side posts are of pressed steel ⅛ in thick, 5 in. deep. The "Dean" Anti-telescoping device has been included in the end framing. This consists of two 6 in.-23.9 lb. I beams, bent in one continuous piece to form both the car end door posts and the vestibule centre posts; there are four 4 in.-8.2 lb. intermediate end posts and the corner posts are each composed of a 4 in.-8.2 lb. Z bar, and a 4 in. by 4 in. by ¼ in. angle. The end sheathing outside is 3-32 in. plate and inside ⅛ in. plate. The roof outside is of steel .078 in. thick on upper deck and .063 in. on lower deck. The flooring is Flexolith throughout (except the saloons and lavatories—white tile) laid on Keystone corrugated steel; below this is provided two separate courses of ¾ in. insulation and air spaces.

Fireproof agasote is used for the ceilings and also on the side walls below the window sills to the top of heater pipe angle or about 10 in. above top of floor, the window sills, window casings and sash being of Mexican mahogany. The remainder of the interior finish is of steel grained mahogany in the body of the car and enamelled white in saloons and lavatories.

Other items are as follows: Six wheel Commonwealth cast steel trucks with 36 in. Schoen solid steel wheels, McCord journal boxes with pinless lids, vanadium steel springs, simplex brake beams, Canadian Bronze Co's journal bearings; Westinghouse air brake Schedule LN-1812, Westinghouse friction draft gear, Tower couplers, National centering device; Forsyth friction buffing gear, Ajax diaphragms, National steel trap doors; Gold Car Heating Co.'s straight steam heating system with electric thermostat control, Hale & Kilburn No. 194 pressed steel seats (upholstered in imitation leather in second class and smoking cars and in plush in first class cars), McCord weatherstrip and window fixtures on all side window sash, pantasote window curtains with Curtain Supply Co's ring curtain fixtures, Stone Co's electric lighting system (24 volt) with twelve two light centre fixtures in body of car and single light fixtures in saloons, lavatories and vestibules; McCarthy continuous basket racks, air pressure water system, The Automatic Ventilator Co's intake and exhaust ventilators are used, there being ten ventilators per car; Duner cast iron flushing closets, white metal wash stands and water coolers, the latter having separate ice compartments. These cars are also equipped with two electric fans each.

They have proved very satisfactory, being very smooth riding and there is very little of the metallic sound which is sometimes very noticeable on steel cars. The ventilation appears to be very good and judging from their action during the short spell of cold weather which occurred recently, it is thought that there will be no difficulty in maintaining them at a comfortable temperature during the severe winter weather.

Equipment Pacific Type Passenger Locomotives with Superheater:

From the economical results obtained by the use of the superheater on the Consolidation freight engines, it has been decided to apply them to our larger passenger engines and offset to some extent the extra cost of fuel for hauling and heating the new steel passenger equipment. At the same time we somewhat increased the tractive power of these engines by putting on new cylinders 22 in. by 28 in. (as against 21 in. by 28 in.) and decreased the boiler pressure from 200 lbs. to 190 lbs. These new cylinders are equipped with 12 in. piston valves. The superheater adopted is the Schmidt type A, top header with outside steam pipes.

The work of installing the superheaters, etc., was allotted to the Canadian Locomotive Co., Kingston, Ont., and three engines Nos. 133, 135 and 136 have been completed. Tests made of these engines before and after superheating show that although the weight of train has increased nearly 30 per cent. there has been a reduction in fuel consumed of approximately 15 per cent.

Electric Cars for Nipissing Central Railways

In July two new cars were received from the Preston Car and Coach Co. These are double end, interurban type, with single arch roof, 51 ft. in length over all, arranged with smoking and baggage compartments, and have seating capacity for 52 persons. The underframes are of steel and the bodies of wood finished in cherry inside. The Smith hot air system is used for heating and the roof is

equipped with automatic intake and exhaust ventilators. The trucks are Brill M.C.B. 2 type, 6 ft. 6 in. wheel base, 33 in. wheels. The cars are equipped with four Westinghouse Co's No. 306 interpole motors and Westinghouse A.M.M. air brake equipment, also auxiliary hand brakes in each vestibule.

Electrical Work:

North section of roundhouse at North Bay Junction has been completely rewired and equipped with electric lights, on account of new roof being applied.

In May, 1914, it was decided to purchase electrical power from the Nipissing Power Company, and necessary alterations and additions were made to the switchboard in such a way that in the event of failure of the purchased power our own equipment could be brought into use in a few minutes. This installation has been found to effect a great saving over the cost of producing our own electric current.

Outdoor lights have been installed for coach, track, and various minor alterations and additions made to lighting arrangements in order to facilitate and render more safe the work of those affected.

At Cobalt additional lights have been installed in freight shed, station platform, and news stand, in addition to ordinary maintenance repairs.

At North Cobalt, Haileybury, New Liskeard and Elk Lake, necessary repairs and renewals have been made from time to time as required.

At Englehart extra lights have been installed at freight shed, platform, and greenhouse, in addition to the upkeep of the rest of the electrical equipment at that station.

At Charlton the Agent's house has been equipped with electric lights and repairs made in station and freight shed.

At Cochrane in addition to repairs to plant and equipment, the pole line has been removed from station to freight shed and lights have been installed on station platform. Line has also been installed for charging plugs for steel coaches.

At Porcupine and South Porcupine lights have been installed in Agent's rooms and necessary repairs and renewals in station and freight shed.

At Schumacher extra lights have been installed on station platform and section house and Agent's house have been wired and equipped with electric lights.

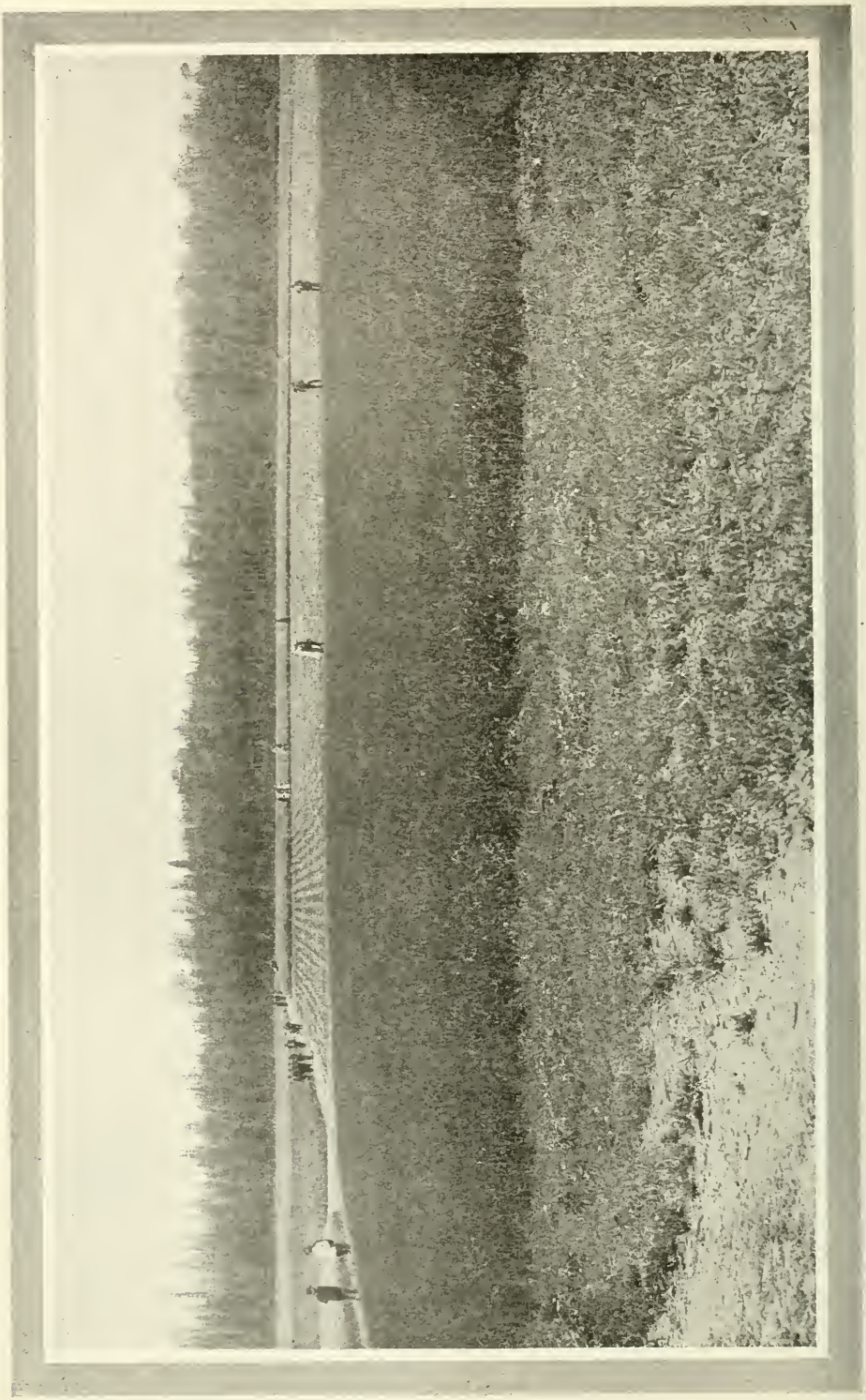
In addition to the above, the headlight equipments on all locomotives, steam cranes, and snow plows, have been thoroughly overhauled and kept in good condition.

For the control of traffic between North Bay Junction and the C. P. Rly, an Electric Train Staff Absolute Block System, supplied by the Union Switch & Signal Company, has been installed, and is working satisfactorily.

Air Brake Equipment:

During the year the L.N. brake equipment has been applied to coaches Nos. 3, 32, 103 and 105. This completes the installation of the High Speed brake on all passenger equipment, with the exception of workmen's cars Nos. 14 and 36. This improved brake equipment was put into service on July 1st, 1914, on all T. & N. O. passenger trains operated over the Government lines. The design of the triple valve and the addition of the supplementary reservoir materially increases the efficiency of the new brake over the former P.M. type, as regards safety of operation.

To further facilitate the smooth and safe handling of passenger trains, the following coaches have been equipped with Miner Class A-2-F friction draft gear



Another view of Experimental Farm, Monteith.

and friction buffer class B-10: Nos. 1, 6, 7, 10, 28, 32, 103, and 105. This gear will be installed on all coaches of early design passing through the shop for repairs, and will overcome the vibration so noticeable with former spring gear, which results in punishment to cars and frequent train breaking.

Eighteen of our locomotives have been equipped with wheel flange lubricators, by which the valve oil, after being used to lubricate the pump, is collected and, together with the condensation from the pump exhaust, is automatically distributed over the driving wheel flanges. Engines equipped with this device have shown, after a period of eighteen months' service, a substantial decrease in the cost of flange maintenance, and a saving of time otherwise lost by the frequent withdrawal of the locomotive from service for flange repairs.

Engines 101, 102, 122, and 126 have been equipped with Schedule S-W-A and S-W-B straight air brake in addition to the A-1 equipment. All the freight engines with the A-1 brake are now equipped with straight air.

With the installation of slack adjusters on tenders of engines 107, 111, and 121, all passenger engine tenders are now equipped with the American Automatic Slack Adjuster.

The following work has also been carried out by the Air Brake Department:

2 motor driven air compressors repaired and tested.
125 air pumps repaired.
605 triple valves cleaned, oiled and tested.
645 car brakes cleaned, oiled and stencilled.
64 No. 6 distributing valves cleaned, oiled and tested.
83 pump governors repaired and adjusted.
98 brake valves cleaned, oiled and repaired.
181 feed valves cleaned, repaired and tested.
135 safety valves repaired and tested.
50 air gauges repaired.
35 locomotive steam gauges repaired and tested.
36 steam heat gauges repaired and tested.
30 steam heat regulators repaired and tested.
119 air signal equipments repaired and tested.
58 driver brake cylinders cleaned, oiled, repaired.
26 tender brake cylinders cleaned, oiled and repaired.

Also bell ringers, conductors valves, retainer valves, car discharge valves, steam heat regulators for coaches, angle cocks, cut-out cocks, double check valves, have been repaired when necessary.

Summary of Extensive Repairs to Locomotives:

Since November 1st, 1913, the following locomotives have been through our shop at North Bay Junction for repairs:

Given heavy repair: Nos. 102, 103, 106, 107, 108, 109, 112, 113, 114, 115, 120, 121, 122, 123, 124, 125, 127, 130, 135, 137, and 140.

Given general repair: Nos. 101, 104, 111, 116, 118, 120, 125, 129, 130, 133, 136, 150, 152.

In April when engine No. 102 was turned out of shop after receiving a heavy repair she was disposed of to Contractors Baldry, Yerburg & Hutchinson, of St. Catharines, Ont.

During the summer of the present year, three engines belonging to Contractor Angus Sinclair, of the C. N. R. construction, went through our shop at North

Bay Junction for repairs, engine No. 54 receiving a light repair, engine No. 1107 receiving a heavy repair including new driving tyres, and engine No. 607 had driving wheels removed and tyres turned.

NOTE: The term "heavy repair" as applied above refers to cases where an engine has received such repairs as driving tyres turned, driving boxes renewed, valves, piston rings, and side rod bushings renewed. "General Repair" refers to cases where an engine has been given a thorough overhauling and re-building.

Each engine has had the boiler washed out once every two weeks when in regular service. Staybolts in fire boxes have been regularly tested and renewals made when necessary. Nettings, ash pans and dampers have been examined at the end of each trip during the summer season as a precaution against fire. During damp weather and at such times as the danger from this source is reduced to a minimum, ashpans and dampers have been examined twice a week.

Engine Dispatch:

Statement showing the number of engines dispatched from the different terminal and divisional points during the year:

Station.	Number of Engines Dispatched.
North Bay Junction	5,960
Cobalt	252
Englehart	3,516
Elk Lake	319
Timmins	1,108
Iroquois Falls	53
Cochrane	945
Total	12,153

The Motive Power has been generally assigned during the year as follows:

Class of Work.	Number of Engines.
Passenger	13
Freight	18
Work	7
Switching	5

Locomotive Mileage:

The following statement shows the mileage made by locomotives belonging to this railway during the year:

Engine Number.	Miles Run.
101	17,956
102	10,523
103	14,770
104	12,570
105	35,600
106	27,692
107	22,919
108	27,165
109	20,139
110	28,245
111	18,830
112	7,330
113	41,792
114	42,266
115	16,125
116	16,456
117	

Engine Number.	Miles Run.
118	3,997
119	9,215
120	13,280
121	33,714
122	26,432
123	26,671
124	30,231
125	27,311
126	29,697
127	13,189
128	43,579
129	28,508
130	3,157
131	23,485
132	31,480
133	37,812
134	41,306
135	21,760
136	38,024
137	45,005
138	45,817
139	19,263
140	40,166
150	25,448
151	42,693
152	21,606
153	28,633
Total	1,111,857

Repairs to Passenger Equipment:

Extensive repairs have been made to passenger equipment at North Bay junction shop as follows:

Class of Car.	General Repair.	Heavy Repair.	Light Repair.
First-Class	6	1	1
Second-Class	6	1	1
Combination	..	..	2
Baggage and Express	1	1	2
Mail and Express	2	1	..
Parlor Cafe	2	1	..

The term "General Repair" as applied to above refers to cases where a coach has had interior scraped and sanded; sashes removed and refitted; mouldings removed and replaced in interior of car; seats removed and replaced; outside sheathing stripped off, panels removed, side of coach trussed and replanked; piers strengthened; letter board removed and replaced; vestibule ends reinforced with iron plates; trucks rebuilt; transoms, end sills and trimmers renewed; journal boxes and brasses renewed and wheels turned.

The term "Heavy Repair" refers to coaches having interior stripped, sanded and varnished; exterior scraped, sanded, repainted and varnished. Trucks repaired, wheels turned and new brasses applied to journals where necessary.

The term "Light Repair" refers to coaches having seat arms scraped and sanded; interior of car varnished; outside of car washed down and given two coats of varnish; trucks repaired.

No extensive repairs have been necessary to Official cars "Sir James" and "Abitibi," the ordinary maintenance or running repairs only having been taken care of as required.

Pay Car No. 1 was thoroughly overhauled, some alterations made to interior of car, and car repainted and varnished inside and outside.

Fish car "Beaver No. 1," purchased by the Fisheries Department during the spring of 1914, was brought to North Bay Junction and given a heavy repair before going into service in April.

Coach Cleaning:

Statement showing the number of coaches cleaned at the different stations during the year:

Station.	Number of Coaches Cleaned.
North Bay Junction	3,217
Englehart	5,896
Cochrane	2,895
Timmins	1,222
Total	13,230

Repairs to Conductors' Vans:

During the past year ten of our conductors' vans have been put through the shop, receiving a thorough overhauling and heavy repair, also being repainted inside and outside.

Repairs to Freight and Work Equipment:

Fifteen 60,000 lb. capacity flat cars have been rebuilt at our shops at North Bay Junction since Nov. 1st, 1913.

Two hundred and thirty-one (231) cars have undergone a heavy repair, one hundred and twenty-two (122) of which were re-decked and one hundred and nine (109) had new sills and decking applied.

Such alterations are being made to all T. & N. O. rolling stock, as cars become available, as are necessary to bring them up to the requirements of the Railway Commission's standards in regard to handholds, grab irons, steps, ladders, running boards, couplers, and brakes.

Twelve thousand six hundred and sixty one cars (12,661) have been repaired for foreign roads and bills collectible covering the cost of repairs have been rendered against the car owners, in accordance with the standard code of rules governing the conditions of repairs to freight cars for the interchange of traffic, adopted by the Master Car Builders' Association. In addition to the above bills have been rendered monthly against the Grand Trunk Railway System, covering the cost of repairs to eighteen thousand seven hundred and thirty-one (18,731) cars, under the terms of the Grand Trunk Running Rights Agreement, at actual cost of labor and material plus 10 per cent.

Snow Plows Nos. 2, 3 and 4, Flanger No. 3, have been repainted. All other work equipment including wrecking cranes, steam shovels, ditcher, pile driver, etc., have been given such repairs as were required to keep them in good running order.

Steel Tyres Turned and Wheels Applied Rolling Stock:

During the year 54 pairs of driving tyres, 114 pairs of coach wheel tyres, 54 pairs tender wheel tyres, and 21 pairs engine truck wheel tyres, also eight pair of wheels for the Nipissing Central Railway, have been turned on the wheel lathe at North Bay Junction.

The following tyres were bored out before being applied to wheels: 26 pair main driving tyres; 35 pairs coach wheel tyres; 7 pairs tender truck wheel tyres; 3 pairs of engine truck wheel tyres.

At Englehart shop sixteen-hundred and seventy car wheels have been pressed off axles, new wheels bored and remounted on axles.

New wheels have been applied to rolling stock on the T. & N. O. Rly. as follows:

To Locomotivess

3 pairs 33 in. C.I. wheels mounted on 3¾ x 7 in. axles.
2 pairs 33 in. C.I. wheels mounted on 4¼ x 8 in. axles.
92 pairs 33 in. C.I. wheels mounted on 5 x 9 in. axles.
19 — 57 in. driving tyres: 12 — 51 in. driving tyres: 12 — 62 in. driving tyres: 10 — 28 in. engine truck tyres; 17 — 33 in. tender truck tyres.

To Passenger Equipment:

2 pairs new steel wheels mounted on 5 x 9 in. axles.
35 pairs 36 in. steel tyres.
59 pairs wheels changed and tyres turned.

To Freight Equipment:

84 pairs new 33 in. C.I. wheels mounted on 4¼ x 8 in. axles.
16 pairs new 33 in. C.I. wheels mounted on 5 x 9 in. axles.
45 pairs new 33 in. C.I. wheels mounted on 5½ x 10 in axles.

To Ballast Cars:

63 pairs new 33 C.I. Wheels mounted on 4½ x 8 in. axles.

To Van, Work and Other Service Equipment:

24 pairs new 33 in. C.I. wheels mounted on 3¾ x 7 in. axles.
3 pairs S.H. 33 in. C.I. wheels mounted on 3¾ x 7 in. axles.
7 pairs new 33 in. C.I. wheels mounted on 4¼ x 8 in. axles.
1 pair new 30 in. C.I. wheels mounted on 4¼ x 8 in. axles.
19 pairs new 33 in. C.I. wheels mounted on 5 x 9 in. axles.
2 pairs new 33 in. C.I. wheels mounted on 5½ x 10 in. axles.

To Foreign Cars:

28 pairs new 33 in. C.I. wheels mounted on 3¾ x 7 in. axles.
860 pairs new 33 in. C.I. wheels mounted on 4¼ x 8 in. axles.
222 pairs new 33 in. C.I. wheels mounted on 5 x 9 in. axles.
164 pairs new 33 in. C.I. wheels mounted on 5½ x 10 in. axles.

Rolling Stock Destroyed:

B. R. & P. car No. 10641 was destroyed by wreck in the joint terminal yards at North Bay Junction, Jan. 21st, 1914.

Indian Camp—Drying Moose Meat.

Rev. Mr. Barraclough, late of Sarnia, Preaching to Indians and Fire Rangers on Montreal River, near Indian Chutes.

C. P. R. car No. 21429 was destroyed by wreck on our line at Cobalt, June 9th, 1914.

G. T. R. car No. 62414 was destroyed by wreck at M.P. 40½, Aug. 28th, 1914.

All salvage in connection with above cars has been returned to the owners, and credit covering the same has been allowed this railway on bills rendered by owners. This does not apply to B. R. & P. car 10641, for which the G. T. R. was responsible.

T. & N. O. car 60447 was destroyed on the line of the Chicago & Northwestern Railway, at Weyville, Wis., on July 7th, 1914. Bill has been rendered covering depreciated value of this car, less credit for salvage returned, in accordance with the rules of the Master Car Builders' Association.

T. & N. O. car 60237 was practically destroyed by the C. P. R. on their Sudbury sub-division, Dec. 8th, 1913, and was turned over to the T. & N. O. Rly. at North Bay Junction, covered by defect card, on which bill covering cost of repairs has been rendered.

Work Turned Out of Carpenter Shop:

The following miscellaneous articles have been manufactured and turned out of the carpenter shop at North Bay Junction:

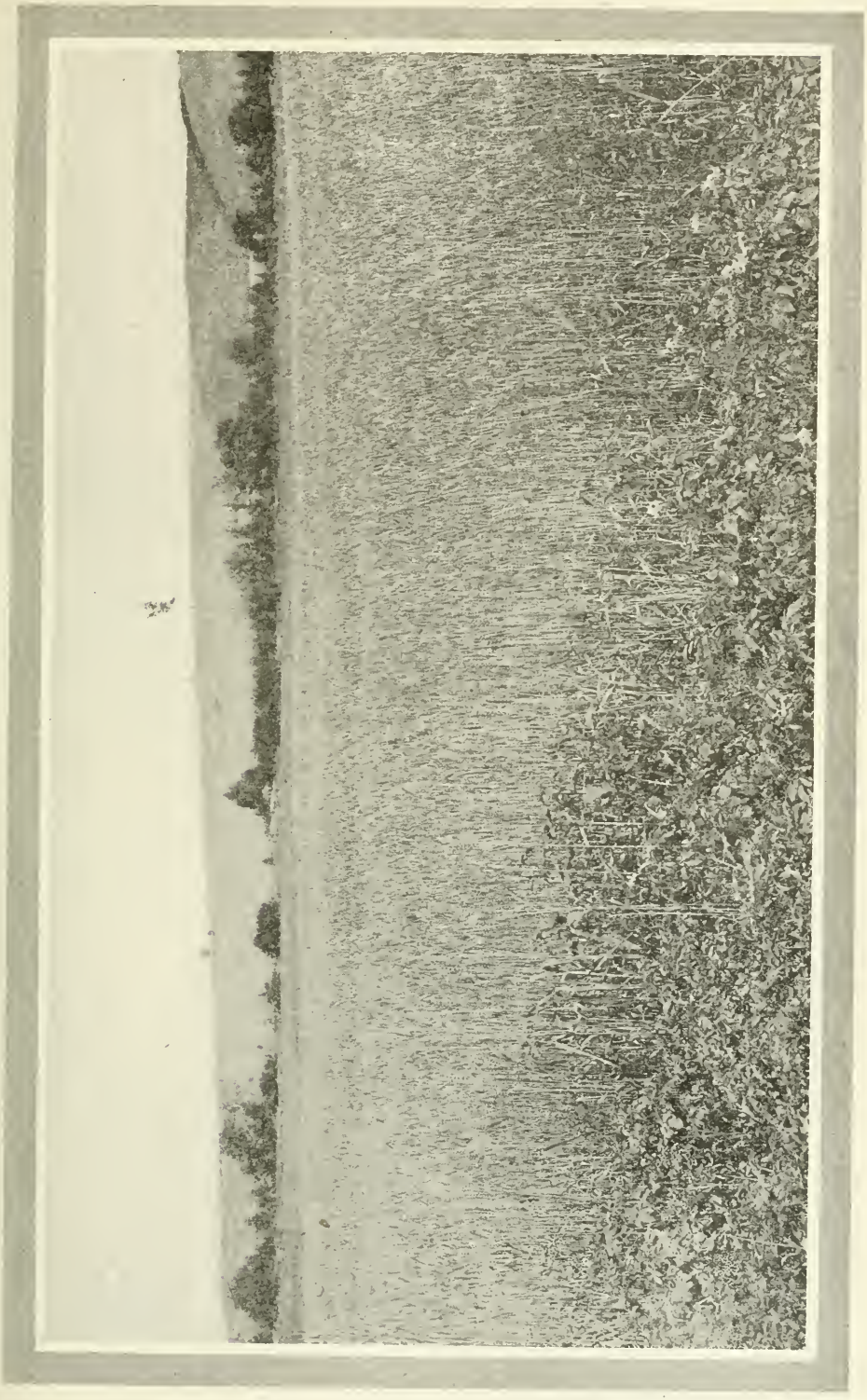
2 step ladders.
6 gang planks.
50 flanger marker boards.
75 transfer cases.
1 conductor's tool box.
27 hand trucks repaired.
1 piano truck repaired.
24 trespass signs.
25 mile boards.
4 towel racks.
379,330 track shims.
6 stepping boxes.
1 office desk repaired.
1 bucket for ice house.
12 time card frames.
1 glass cutting board.
6 frames for monthly bulletins.
24 office chairs repaired.
2,500 stakes for Engineering Department.
6 railway crossing signs.
2 frames for "No Smoking" signs.
3 troughs for stock pens.
4 settees for Cochrane station.
1 office table repaired.
6 filing cabinets.
1,800 ft. explosive blocking.
1 cabinet repaired.
12 time card racks.
1 table for Cochrane station.
2 station seats.
4 notice boards.
1 cupboard.

Pattern Making:

During the year there have been sixty-one patterns made at the pattern shop at North Bay Junction for the repairs and renewals to the different parts of locomotives, cars, work equipment and shop machinery. All patterns are the property of the railway and a proper record is kept as to location of same.

The Motive Power, Rolling Stock and Equipment of this railway at present consists of the following:

39 road locomotives.
4 switching locomotives.
2 official cars.
1 pay car.
14 first class wooden coaches.
3 first class steel coaches.
15 second class wooden coaches.
2 second class steel coaches.
3 combination first and second class steel smoking cars.
2 combination wooden second class and baggage cars.
1 exhibition car.
3 parlor cafe cars.
5 baggage and express cars, wooden.
2 baggage and express cars, steel.
5 mail and express cars, wooden.
3 mail and express cars, steel.
1 fish car.
23 conductor's vans.
10 stock cars.
146 box cars.
98 steel underframe flat cars.
365 wooden underframe flat cars.
12 steel drop bottom dump cars.
17 Hart convertible cars.
3 snow plows.
3 snow flangers.
3 right hand ballast plows.
3 left hand ballast plows.
3 centre ballast plows.
1 Jordon ballast spreader.
1 centre ballast spreader.
3 Idgerwood rapid unloaders.
1 pile driver.
1 American railroad ditcher.
2 steam cranes.
3 steam shovels.
2 auxiliary boarding cars.
2 auxiliary tool cars.
2 road department auxiliary tool cars.
2 Crane cabin cars.
2 road cabin cars.
1 pile driver tank car.
8 boarding cars.



Wheat Crop—Fitzpatrick Farm, Dawson's Point.

ANNUAL REPORT, ROAD DEPARTMENT TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION

Year Ended October 31st, 1914

WM. YOUNG, GENERAL ROADMASTER.

Maintenance of Track.

First Division, North Bay to Englehart, Including Branch Lines.

Tie renewals decreased 48.5 per cent. from those of the previous year. The estimates for 1915 indicate a further decrease of 27 per cent. from this year's figures.

Rail renewals decreased 39 per cent. from those of last year, and a further decrease in new rail is estimated for 1915, it being the intention to relay with class No. 1 released rail now on hand, in order to reduce the purchase of new rail.

Second Division, Englehart to Cochrane, Including Branch Lines.

Tie renewals have increased 31.3 per cent. over the year 1913, which is more than forecasted when the estimates were taken last year, and the estimates for 1915 indicate a decrease of 2 per cent. from this year's figures. This will probably be turned to a slight increase before the close of next year.

Rail renewals have been practically nil, except for a few defective ones.

General Remarks.

At the close of the fiscal year the track and roadbed, generally speaking, were never in better condition, partly due to the comparatively dry summer and fall, but more particularly to the improvements effected from year to year, viz.: widening of clay cuts and fills, sub-drainage of wet clay cuttings with six-inch tile and covering same with locomotive cinders, additional gravel ballast placed under track, spiralling and re-alignment of curves, tie-plating of curves of 2 degrees and over; all these improvements are having the desired effect, on solid formation.

The heavy class of locomotives of the Pacific and Consolidated types, introduced some time ago and in use on main line of First Division, are showing their crushing effect on the road-bed through the muskeg formation by the distortion and creepage of track. The remedy to be applied in such places includes the use of longer ties and anti-rail creepers, and the placing of more ballast under the track to increase the solidity and extend the bearing surface.

The supply of labour during the year has been quite equal to the demand, but the class was of the usual foreign element. Owing to the difficulty in obtaining from the rank and file of common labour men to qualify for foremanship, a few English speaking young men who had several years' experience as sectionmen were put to work in two extra gangs engaged in constructing side tracks and installing switches at a slight advance in wages over the ordinary labourers, in order to encourage and prepare them for the position of Section Foreman. From this source we have appointed two men and placed them in charge of sections on the First Division.

New Steel Laid.

From M.P.	To M.P.	Miles.	Description.	Maker, etc.
15.93	26.52	10.59	A. S. C. E. 80 lb.....	Algoma Steel Co., Year 1914
33.75	35	1.25	do	do do
		11.84		

Old Steel Released.

15.93	26.52	10.59	A. S. C. E. 80-lb.....	Cammell, Sheffield, England, Year 1903.
33.75	35	1.25	do	Cammell, Sheffield, England, Year 1903.
		11.84		

The new steel laid was coupled with "Continuous" rail joints.

Received 1,500 tons new 80-lb. A.S. C.E. pattern steel rail from Algoma Steel Corporation, Sault Ste. Marie, Ont., during the year, all of which was used for main line renewals, as shown above.

The better class of rail released from track, known as class No. 1 relay, is used for renewals elsewhere in main tracks. No. 2 class relay is used for new sidings, etc. In this way main track receives the benefit of new steel.

Other Rail Removed from Track. Account, Failures and Wear.

Description and Remarks.	No. Rails.	Lin. feet.	Make.
Failures.			
Clean break, cause unknown	26	856	Algoma.
	16	418	Cammell.
	4	132	D. I. & S.
Flaw in web or base	4	132	D. I. & S.
	11	361	Algoma.
	3	99	Cammell.
Extreme frost	1	33	Cammell.
	65	2,031	

Removed on account of general wear, the chief causes being:

Crushed head	71%	
Split head	21%	
Miscellaneous	8%	
	100%	29,576
Total lineal feet removed		31,607
Total gross tonnage		376.28
Equivalent in track miles		2.99

NOTE.—The rail laid in place of above was principally No. 1 Relay (second hand), released from points where new rail was laid.

Cross Ties Used.

	First and second quality.	Culls.
Renewals, Main Line and Sidings, Joint Terminals		
North Bay Junction	1,695	346
Renewals, Main Line, First Division	41,193	
" " Second "	46,066	
" Sidings, First Division	3,471	636
" " Second "	3,090	176
" Porcupine Branch	290	
" Nipissing Central Railway (Proper)	16	
Extras, First Division, including ties used to replace bridge ties over filled bridges, etc.	558	
Extras, Elk Lake and Porcupine Branches	193	
New T. & N. O. sidings, etc., including Iroquois Falls Branch and sidings thereon, also Joint Section and Terminal sidings, Cochrane	31,740	3,304
New Private sidings	2,848	870
New N. C. and private sidings and spurs, Nipissing Central Railway lines	507	1,127
Sold to Lake Erie and Northern Railway, Brantford	9,500	500
" Abitibi Pulp & Power Co., Iroquois Falls	188	12
" Messrs. Morrow & Beatty, Iroquois Falls		415
" Canadian Mines Finance Co., Timmins	47	15
Supplied to Grand Trunk Railway from auxiliary car ..	24	
Destroyed by fires.....	531	747
Totals	141,957	8,148

Sets of Switch Ties Used.

	Frog Number.			
	No. 6	No. 8	No. 10	No. 11
Renewals, T. & N. O. switches	.....	12	1	6
" Private switches (B.C.)	.....	.....	.....	.....
New T. & N. O. sidings, etc.	.....	40	2	9
New Private sidings	.....	9	.....	.....
New sidings on Nipissing Central Ry.	4	5	.....	.....
Sold Abitibi Pulp & Power Co.	.....	4	.....	.....
Totals	4	70	3	15

Set ties for No. 6 frog contains 428 lin. feet 7" x 9" timber.
Set ties for No. 8 frog contains 502 lin. feet 7" x 9" timber.
Set ties for No. 10 frog contains 577 lin. feet 7" x 9" timber.
Set ties for No. 11 frog contains 717½ lin. feet 7" x 9" timber.

Grandmother and Great Grandmother.

Sidings Laid and Extended.

Location	Description.	Purpose.	Length.
North Bay	New coach storage siding	Coach storage.	832
Widdifield	New through town siding	Frt., Dlvy., etc.	603
M. P. 24¾	Pit sidings, extended	Ballast	615
Riddle	Through sidings, extended	General	1,128
M. P. 58½	Pit sidings, extended	Ballast	726
M. P. 73.7	Wm. Milne & Son's spur siding (Only 220 ft. by T. & N. O. forces)	Logging	533
Rib Lake	Gillies Bros. log siding, extended	Logging	281
Latchford	Canadian Pulp & Lumber Co., siding No. 2	Pulp Mill	995
Gillies Depot	Gillies Bros. log spur	Logging	479
Cobalt	Extension LaRose Mine siding	Mining	325
	Cross over to scale siding	Weighing	182
	Turn-off at weigh scales	"	182
	The following yard changes made in connection with electrification of Kerr Lake Branch for use by Nipissing Central Railway:—		
	Second track extended to connect with Kerr Lake Branch, main line	General	2,027
	New transfer siding	"	820
	New connection to Kerr Lake Branch	"	290
	Extension of original Kerr Lake Branch	"	130
	Extension of weigh scale siding	Weighing	560
	Connection to new main line	General	450
	New town siding south of station	Frt. dlvy.	366
	New town siding north end of yard	"	859
	Crossover No. 1	General	167
	" No. 2	"	167
	" No. 3	"	234
	" No. 4	"	234
	New turn-out, Nipissing Central	"	430
M. P. 104	New dynamite delivery siding	Frt. dlvy.	514
	No. 2 spur for Northern Customs Concentrator Co.	Concentrator	285
M. P. 104¾	Turn-out for Nipissing Central Railway	N. C. R.	555
North Cobalt	Extension switch-back spur for Northern Lumber Mills Co.	Planing mill	66
	New Nipissing Central car barn spurs:		
	Coal spur	N. C. R.	516
	Barn spur No. 1	"	380
	" No. 2	"	308
	" No. 3	"	350
Haileybury	Loading siding on market spur	"	455
	Harris Tie & Timber Co. spur	"	341
	Turn-out at Albert Street	"	394
M. P. 111¾	Emergency Crossover, main line to second track, for use in case of land slides, etc.	Emergency	166
New Liskeard	Extension New Liskeard spur to Government wharf on lake shore	Genl. frt.	1,980
	Short spur on wharf siding	"	450
Uno Park	Extension town siding	"	1,283
Thornloe	Extension through siding	"	1,674
	New through town siding	"	1,213
Kenabeek	New loading siding	"	622
Elk Lake	Engine shed siding	Engines	335
M. P. 132	Extension short spur siding	Genl. frt.	198
Wabewawa	Extension spur siding	"	456
M. P. 145½	S. Henrofskey's spur	Private	332
M. P. 149½	T. & N. O. spur	Genl. frt.	291
M. P. 153½	Temporary bridge spur	Bdgs. Constn.	300
Wataybeag	Extension spur to through siding	Genl. frt.	318
Monteith	Geo. D. Hamilton spur	Private	363
Porquis Jct.	New through freight shed siding	Genl. frt.	750
Iroquois Falls	Abitibi Pulp & Paper Co. paper mill spur	Paper Mfg.	3,271
	Short spur at A. P. & P. Co. mill	"	554

Sidings Laid and Extended.—Continued.

Location.	Description.	Purpose.	Length.
Iroquois Falls...	Coal trestle spur at A. P. & P. Co. mill.....	Paper Mfg....	2
	Extension freight shed spur.....	Genl. frt.....	138
	Through siding at station, extended.....	"	298
	New through siding at station No. 2.....	"	1,283
	Engine house siding.....	Engines	821
	Coal spur at engine house	"	297
M. P. 5¼.....			
Iroquois Falls Branch.....	New spur siding	Genl. frt.....	331
M. P. 13½, Porcupine Branch...	McIntosh Springs spur siding	"	562
Schumacher.....	Passing siding, extended	"	210
M. P. 39.4, Porcupine Branch..	Canadian Mines Finance Co. spur	Mining	448
M. P. 227.....	F. Brown's spur siding	Private	270
M. P. 228.7.....	Messrs. Malkin & Ryan's spur	"	950
Cochrane	New main line entrance to new station and yard	General	13,200
	Through siding No. 1	Genl. frt.....	4,800
	" " No. 2	"	3,113
	" " No. 3	"	2,954
	" " No. 4	"	3,099
	T. C. R. connection at east end of yard	"	760
	East ladder track	"	2,278
	No. 1 crossover	"	298
	No. 2 "	"	169
	No. 3 "	"	251
	Freight shed siding	"	1,967
	Total feet	.....	71,032

71,032 feet ..... 13.45 miles.

Sidings Shortened and Taken up.

Location	Description.	Purpose.	Length
North Bay.....	Crossover car repair siding to coach track, taken up	Coaches.....	188
	Crossover between main line and freight shed siding, taken up	Genl. frt.....	172
	Crossover between main line and freight shed siding, taken up (No. 2 crossover)	"	172
M. P. 92½.....	Gillies Bros. old camp spur, taken up	Private.	473
Gillies Depot....	Gillies Bros. logging spur, taken up	"	479
Cobalt	Old Nipissing Central main line, between Cobalt and North Cobalt, abandoned and taken up (2.9 miles)	N. C. R.	15,312
	Three short spurs on above line, taken up ..	"	734
North Cobalt.....	Old connection main line to Nipissing Central old line, taken up	"	629
Charlton.....	End of old main line, beyond Long Lake spur switch, taken up	General.....	380
M. P. 13½, Porcupine Branch..	Old log spur, taken up	Genl. frt.....	520
M. P. 30.75, Porcupine Branch..	Knight Bros. & McKinnon spur, taken up ..	Private.....	1,604
M. P. 35.12, Porcupine Branch.	Old McIntyre spur, taken up	"	400
Schumacher.....	Siding No. 2, shortened	Genl. frt.....	66
	Total feet	.....	21,129

21,129 feet ..... 4 miles

Sidings under Construction at close of year.

Earlton:

New Elk Lake Branch, main line entering yard, and town siding, at this point.

Iroquois Falls:

Additional siding accomodation is being installed at "Y" to provide required storage and transfer facilities at that point.

New Under Culverts

Location.	Size.	Length.	Description.	Purpose.
Widdifield ..	24 inches	56 feet	Corrugated Iron Pipe	Under new town siding and roadway.
M. P. 25.02.	20 "	30 "	" " "	Under main line.
M. P. 55....	30 "	36 "	" " "	" "
Cobalt.....	15 "	90 "	" " "	New Sidings, etc.
"	2 ft. x 4 ft.	72 "	Cedar Box	La Rose siding extension.
Haileybury .	20 inches	24 "	Corrugated Iron Pipe	Loading siding, market spur N. C. Railway.
Uno Park...	20 "	30 "	" " "	Town siding extension.
"	24 "	30 "	" " "	" "
Thornloe....	2 ft. x 2 ft.	45 "	Cedar Box	New Town siding and roadway.
"	30 inches	16 "	Corrugated Iron Pipe	Extension through siding.
Watabeag ..	15 "	24 "	" " "	Extension siding.
Cochrane ...	30 "	60 "	Concrete Pipe	New yard sidings.

New Side Culverts.

North Bay..	8 "	30 "	Corrugated Iron Pipe	Drainage William Street.
"	24 "	54 "	Concrete Pipe	Drainage yard west of ice house.
Trout Lake .	30 "	33 "	" "	New public crossing.
"	10 "	30 "	Corrugated Iron Pipe	" "
M. P. 34½...	8 "	30 "	" " "	Drainage.
North Cobalt	10 "	60 "	" " "	New Nipissing central car barns.
M. P. 111¼..	24 "	72 "	" " "	Drainage at point of land slide, second track used by N. C. Railway.
Earlton.....	30 "	99 "	Concrete Pipe	Extension culvert new station.
M. P. 130¾	20 "	60 "	Corrugated Iron Pipe	Off-take drain.
	24 "	30 "	" "	" "
	30 "	90 "	" "	" "
M. P. 132¾..	12 "	44 "	" "	Murphy's farm crossing.
Kenabeek ..	12 "	54 "	" "	Drainage shelter station.
Englehart ..	30 "	32 "	" "	Experimental hedgerow drainage.
"	12 "	16 "	" "	" "
Bourkes	8 "	40 "	" "	Farm crossing.
Ramore	20 "	25 "	" "	"
Belleek	10 "	30 "	" "	Darinage shelter station.
Matheson ..	24 "	30 "	" "	Drainage car house.
Waytaybeag	12 "	120 "	" "	Drainage shelter station.
Monteith....	24 "	24 "	" "	Road crossing.
Porquis Jct..	24 "	33 "	Concrete Pipe	Roadway to freight shed.
M. P. 225¼..	24 "	168 "	" "	Improvement township line crossing.
Iroquois F'lls	24 "	60 "	" "	Roadway to shed.
Nahma	10 "	90 "	Corrugated Iron Pipe	Drainage station platform, etc.

New Tile Drains.

Location.	Size.	Length.	Description.	Purpose.
North Bay..	6 inches	1,640 feet	Vitrified tile	Drainage switches, etc.' between lead and main line, west yard. 26 eight inch catch basins located so as to accommodate all surface drainage.
"	8 "	10 "	Corrugated iron pipe....	
"	10 "	8 "	" "	
"	8 "	52 "	Vitrified tile (uprights) .	
"	6 "	216 "	Vitrified tile.....	Drainage Canadian Northern diamond crossing.
"	8 "	16 "	Corrugated iron pipe....	
M. P. 5¼...	6 "	1,500 "	Common land tile	Underdrainage wet cutting.
"	6 "	122 "	Vitrified tile	
"	8 "	46 "	Corrugated iron pipe....	
M. P. 95½..	6 "	382 "	Vitrified tile	" "
"	8 "	19 "	Corrugated iron pipe ...	
M. P. 123-124	6 "	894 "	Vitrified tile	" "
M. P. 125-126	6 "	3,722 "	" "	Underdrainage cutting.
M. P. 126-127	6 "	1,468 "	" "	" "
" "	6 "	100 "	" "	Surface drain public crossing.
M. P. 127-128	6 "	1,350 "	" "	Underdrainage cutting.
Earlton	6 "	1,600 "	" "	Drainage new section dwelling basement, etc.
M. P. 132-133	6 "	3,330 "	" "	Underdrainage cutting.
M. P. 183-186	6 "	8,082 "	" "	" "
" "	8 "	75 "	Corrugated iron pipe....	" "
Ramore	6 "	124 "	Vitrified tile	Drainage station surroundings.
Connaught..	6 "	674 "	" "	Drainage station platform and cutting.
		25,430.....	Total Lineal Feet.	

25,430 feet.....4.81 Miles.

Right of Way Cleaned

Supervisor's District.	Total miles.	Description and Remarks.
First	35	Thoroughly cleared, by regular section gangs.
"	14	Thoroughly cleared, by one extra gang.
Second	31	Thoroughly cleared, by regular section gangs.
"	19.5	Thoroughly cleared, by one extra gang.
Third	38	Thoroughly cleared, by regular section gangs.
"	2	Thoroughly cleared, by one extra gang.
	139.5	Total miles.

By "Thoroughly cleared" is meant right of way cleared of all stumps and other wooden rubbish and the same piled up and partly burned.

In addition to above work, all other right of way was cleared of brush and weeds by section gangs during month of August, so that the entire railway right-of-way was covered in one form or another.

Station Grounds Cleared.

Location.	Acres.	Remarks, etc.
Timagami	4	All stumps and rubbish burned.
Thornloe	2½	" " " " on additional land.
Iroquois Falls .	7	" " " " at station and Wye.
Cochrane	5	" " " " on James Bay station grounds.
	18½	Total acreage.

A Halt for Dinner—Father Evain and his Indians above Elk Lake.

Indians Dressing Moose Hides for Moccasins, which are sold to Prospectors, Settlers and the Hudson Bay Company.

Roadway Improvements, etc.

Location.	Purpose.	Description and Remarks.
North Bay....	Freight delivery, etc...	Driveway south of Regina Street shed extended eastward to provide increased facilities for receipt and delivery of freight. Filling hauled from Pit M. P. 24¾; 65 cars gravel, coated with 5 cars cinders.
"	Town streets	William Street, from Golf to Regina, raised and coated with 30 cars gravel hauled from Cassidy Pit This work was done in accordance with agreement with Town authorities relative to the closing of certain streets.
Widdifield ...	Station roadways	Roadway to new town siding graded and coated with 4 cars cinders. Gate providing access to station grounds moved 50 feet to northwards to meet line of new road graded by Township.
M. P. 104	Freight delivery	Roadway graded to new dynamite delivery siding at this point, with 31 cars gravel hauled from Pit M. P. 58½. This road will be used chiefly by consignees of Cobalt district taking delivery of explosives, etc.
North Cobalt..	Lakeview Ave.	Widened Lakeview Avenue, where traversed by tracks of Nipissing Central Ry., with 34 cars of gravel hauled from Cassidy Pit.
Haileybury ..	Town streets	Paved Ferguson Avenue, south of Main St., between and outside rails of N. C. Ry., with crushed rock from Cobalt mines. 11 cars or 308 cubic yards used for this purpose, this year.
"	Haileybury-Liskeard Road	Tracks of Nipissing Central Railway north from Vendome Hotel, Haileybury, raised with 94 cars gravel, hauled from Elk Pit, Tracks now conform to new level of main road.
New Liskeard.	Lake Shore Road	This road gravelled between and outside rails of Nipissing Central Ry. with 170 cars gravel hauled from Cassidy Pit. A decided improvement was effected by this work.
Thornloe	Freight delivery, etc. .	Roadway to new town siding graded with 133 cars gravel filling hauled from Elk Pit and coated with 5 cars cinders. This roadway provides good accomodation for patrons in that locality, in handling freight to and from that siding.
Earlton	Station	Roadways to new station graded with 46 cars gravel filling hauled from Elk Pit.
Wabun	Freight delivery, etc...	Roadway to Wabun siding graded with 48 cars gravel filling hauled from Elk Pit and coated with cinders.
Englehart	Station driveways.....	Roadways in rear of station covered with 10 cars gravel hauled from Elk Pit and coated with cinders. Considerable improvement made.
Dack	Freight handling	Roadway to Dack siding considerably improved with 16 cars gravel filling hauled from Cassidy Pit and 7 from Elk Pit, thus providing better means of access to and from siding for settlers and others in that vicinity.
"	Township roads	Dack Township authorities supplied with 12 cars gravel hauled from Cassidy Pit to be used on township roads.
Charlton	Station roads	Charlton station roadways improved with 5 cars gravel coating hauled from Cassidy Pit.
Chamberlain .	Freight handlin, etc. .	Roadway to piling ground at Chamberlain siding considerably improved with 7 cars gravel hauled from Elk Pit, and coated with cinders.
Bourkes	Station roads	Station driveways here coated with 11 cars sand.

Roadway Improvements, etc.—Continued.

Location.	Purpose.	Description and Remarks.
Porquis Jct....	Freight handling, etc...	Roadway to new shed siding graded, ditched, etc., and put in good shape to provide means of access to new freight shed.
Onagon.....	Freight	Roadway to siding at this point cleared, graded and coated with gravel.
Iroquois Falls.	Station	Roadway to station and freight shed cleared and graded, and drained.
McIntosh Sps..	Freight, etc.	Roadway to new siding installed at this point stumped and graded, and drained.
S. Porcupine..	Township roads	Townships of Tisdale and Whitney supplied with considerable quantity of gravel from Railway premises at this station, to be used on township roads.
Nahma	Freight, etc.	Roadway to siding here graded with 96 cars filling hauled from Nellie Lake. This provides easy access to and from siding for settlers in that neighborhood.
Cochrane	Station	Roadways to new station and to freight shed coated with cinders.

Public Road Crossings.

Location.	Description.	Remarks.
Trout Lake	At grade	New crossing installed over main line north of Trout Lake station.
M. P. 6-⅛	" "	Old public crossing at this point closed.
North Cobalt	" "	Crossing installed over Nipissing Central at King Street.
Uno Park	" "	Crossing installed at main road over town siding extension.
M. P. 225¾	" "	Crossing installed at Township line.
Onagon	" "	Over main line of Iroquois Falls Branch at west switch, Onagon.
Nahma	" "	At Township line.

Private Road Crossings.

M. P. 4⅛	At grade	Old public crossing converted to private use.
M. P. 7⅜	" "	Old private crossing moved 300 feet to southward.
Bourkes	" "	Private crossing installed.
Ramore	" "	Private crossing installed.

Ditching—Hand Work.

Location.	Length.	Remarks, etc.
North Bay Jct.	703 feet.....	Open ditching, necessitated by construction of new coach siding, west of ice house.
M. P. 124 to 125	1,000 feet.....	Ditches cleaned.
M. P. 125 to 127	400 feet.....	" "
M. P. 128 to 129	3,600 feet.....	" "
M. P. 130¾.....	630 feet.....	Ditch cleaned in connection with off-take drain at this point.
	900 feet.....	New ditch opened, in connection with off-take.
M. P. 131 to 133	4,500 feet.....	Ditches cleaned.
Wabewawa	675 feet.....	New ditch opened to drain extension of spur.
M. P. 185 to 186	600 feet.....	Ditches cleaned.
Porquis Jct.	1,500 feet.....	New ditch opened to drain new shed siding.

Clay Cuts Cleaned and Ditched—Machine Work.

Location.	Miles road.	Remarks, etc.
M. P. 8 to 11½	3.5	Clay cuts cleaned where necessary, 59 cars material loaded.
M. P. 60 to 60¼	0.25	Cut cleaned, 8 cars loaded.
M. P. 111 to 112	1.0	Land slides in clay cuts cleaned, M. P. 111 and 112. 90 cars clay lifted.
M. P. 123 to 128	5.00	Clay cuts cleaned and widened in connection with work of tile underdrainage. 691 cars clay lifted.
Elk Lake Branch:		
M. P. 11 to 12	1	Cuts cleaned where necessary. 170 cars clay loaded.
M. P. 14 to 15	1	Cuts cleaned, etc. 43 cars clay loaded.
M. P. 18 to 19	1	Cuts cleaned, etc. 22 cars clay loaded.
M. P. 26 to 26½	0.50	Cuts cleaned, etc. 33 cars clay loaded.
Charlton Branch.....	1.00	Clay cuts near M. P. 1 and on old main line at end of branch cleaned. 167 cars clay material lifted.
M. P. 140 to 149	9	Clay cuts cleaned where necessary. 152 carloads material lifted.
M. P. 180 to 187	7	Clay cuts cleaned and widened prior to work of tile underdraining same. 759 cars material lifted and some "cast" work done.
M. P. 194 to 198¾	4.25	Clay cuts cleaned where necessary. 311 carloads clay material lifted.
M. P. 201¼ to 204	2.75	Clay cuttings cleaned, etc. 220 cars clay loaded.
M. P. 208 to 218	10	Clay cuts cleaned where necessary, including land slide lifted at M. P. 209¾. 130 cars material lifted from cuttings and 30 cars at slide M. P. 209¾, October 12th.
M. P. 220 to 223	3	Clay cuts cleaned, etc. 90 cars clay lifted.
	50.25	.....Total Miles Road.

NOTE.—All above work performed by "American" Railroad Ditcher machine, with one work train and necessary crew.

Land Slides and Wash-outs.

Location.	Description and Remarks.
M. P. 111	Land slide occurred here on April 16th. Part of material removed by hand work, balance of 52 car loads lifted by steam shovel No. 1. No damage caused other than slight interruption to traffic.
M. P. 111¼	Part of road-bed supporting track used by Nipissing Central Railway slid out, November 22nd, causing somewhat serious interruption to traffic on Nipissing Central Railway between Haileybury and New Liskeard. Embankment replaced with 91 cars filling hauled from Cassidy Pit.
M. P. 112	Slide occurred in side cutting here on November 22nd, causing partial derailment engine No. 122. While this slide was being removed, a second one occurred. Both were removed by Ditcher Machine. 38 cars material lifted.
M. P. 141¼	An unimportant wash-out occurred at beam culvert at this point during April, due to Spring freshets. Filled with 4 cars cinders from Englehart.
M. P. 209¾	Slide in cutting took place here on October 12th, for 115 feet in length, the thin edge of same extending over nearest track rail. Lifted by Ditcher. 30 cars material lifted.

Fence Repaired and Renewed.

Description.	Location and Remarks.	Side.	Total Rods.
Right of way ...	Between M. P. 105 and 108, rebuilt.....	West.....	560
" " ...	" " " " repaired	East.....	580
" " ...	" " 112 and 115, repaired	Both.....	610
" " ...	" " 123 and 125, repd. and rend.	Both.....	1,140
" " ...	" " 128 and 130, repaired	Both.....	460
" " ...	" " 130 and 131, renewed	West.....	320
" " ...	" " 130 and 132, repaired	East.....	580
" " ...	" " 198 and 200, light repairs only account posts heaved	Both.....	1,280
" " ...	Between M. P. 203 and 205, light repairs only account frost heaving posts	Both.....	540
" " ...	Between M. P. 207 and 212, light repairs account posts heaved up	Both.....	240
" " ...	Between M. P. 215 and 216, repaired	East.....	320
	Total rods	.....	6,730

6,730 Rods .....21 miles fence.

Successful Fall Fair, Charlton, 1914.

Hockey Match at Elk Lake.

New Fence Constructed.

Description.	Location and Remarks.	Side.	Total Rods.
Right of way	M. P. 7¾, front of Feronia sand pit	West	76
Station grounds boundary	Latchford	West	308
" "	Thornloe, fencing additional land.	Both	205
Right of way	M. P. 180½ to 184¼	Both	2,012
Station grounds	Wataybeag, old fence removed t new line	East	52
	Wataybeag, new fence built	"	37
"	Homer, old fence removed to new line	"	59
	Homer, new fence built	"	35
"	Nushka, old fence moved to new line.	"	57
Station grounds	Monteith, old fence moved to new line	"	60
Right of way	M. P. 227 to 229	Both	960
"	M. P. 245 to 250, less openings at Nahma siding and spur 245½	Both	3,120
	Total rods fence		6,981

6,981 Rods ..... 1.8 miles fence.

Timber Bridges, etc., Filled.

Location.	Material.	Quantities.	Remarks.
M.P. 42.18	Filling from pit M.P. 58½	109 cars.	Timber trestle replaced by arch culvert and filled.
M.P. 48.90	Filling from pit M.P. 58½	272 "	Trestle approaches to steel bridge filled. Main line over this bridge raised with 121 cars ballast to meet new bridge level.
M.P. 55.94	Filling from pit M.P. 58½	341 "	Timber trestle replaced by double barrel 30 in. culvert and filled.
M.P. 57.31	Filling from pit M.P. 58½	4,045 "	Timber trestle filled with exception of small opening.
M.P.58.75*	Filling from pit M.P. 58½	8 "	Timber bridge replaced with concrete deck.
M.P.59.41*	Filling from pit M.P. 58½	19 "	Timber bridge replaced with concrete deck.
M.P. 73.71	Filling from pit 58½	34 "	Beam culvert replaced by concrete pipe and filled.
M.P. 75.44	Filling from pit M.P. 58½	16 "	Filling sag in filled trestle.
M.P.119.13	Filling from Cassidy Pit	50 "	Trestle approaches to steel bridge filled.
M.P. 27 Elk Lake Branch..	Filling from Elk Pit....	652 "	Timber trestle replaced by arch culvert and filled. This work was started last year.
M.P. 153½	Filling from Cassidy Pit.	115 "	Trestle approaches to steel bridge filled.
	Cinders from Englehart	9 "	
M.P. 179	Sand from cuts M.P. 180-184	77 "	Filling sag in filled trestle.
M.P. 205¾	Filling from Nellie Lake	76 "	Timber trestle replaced by arch culvert and work of filling commenced.
M.P. 242	Filling from Nellie Lake	18 "	Timber culvert replaced by concrete and filled.

*1,115 cars used to raise main line over these bridges to meet new level thereof

Main Line, Re-ballasted.

From M.P.	To M.P.	Quantities and Description.	Cars.	From pit.	Total miles.
15.5	26.5	Full ballasted	1.970	Pit M.P. 58½	11.00
33.75	39	" "	860	" ..	5.25
101	102	" "	130	Cassidy	1.00
111.5	112	Patch ballasted	17	"	0.50
117	118	" "	34	"	1.00
121	129	Full "	1,334	"	8.00
131	132	Patch "	8	Elk Pit.....	1.00
		Total miles			27.75

Miles track full ballasted	25.25
" patch "	2.50
Total miles track ballasted	27.75

Main Line Embankments Restored to Width.

Between— M.P.	and M.P.	Cars of material.	Taken from	Miles track.
7.5	11	59-clay	Cuts M. P. 8-11½	3.5
14.75	35	4,181-coarse gravel	Pit M. P. 24¾	20.25
40	41	16-ballast fill'g	Rabbit Creek Pit	1.00
41	47	78- " "	" "	6
61	64	120- " "	" "	3
65	69	46- " "	" "	4
72	73	16- " "	" "	1
84	85	17-filling	Cassidy Pit	1
96	97	17- "	"	1
110.5	112	79-clay	Slides 110¾-111-112	1.50
122	125	225- "	Cuts 123-126	3
127	128	139- ,,	" 125-128	1
		Elk Lake Branch.		
8	12	226-filling	Elk Pit	4
11	13	166-clay, etc.	Cuts 11-12	2
14	15	33- "	" 14-15	1
18	19	32- "	" 18-19	1
	27	33- "	" 26	0.25
		Charlton Branch.		
2	3	163-clay	Cuts M. P. 1 and 140 M. L.	1
4	6	25- "	Old Main Line, C. B.	2
6	7	25- "	" "	1
140	.....	7- "	Cut M. P. 144	.....
141	142	14- "	Cut M. P. 140	1
146	149	81- "	Cuts M. P. 146-149	3
180	186	748- "	Cuts M. P. 180-186	6
194	198.25	291- "	Cuts M. P. 194-198¼	4.25
199	199.25	150- "	Cuts M. P. 201¼-203-204	0.25
203.5	204.5	100- "	Cuts M. P. 201¼-204	1
208	219	160- "	Cuts M. P. 208-218 and slide M. P. 209¾	11
222	223	90- "	Cuts M. P. 220-222	1
		Porcupine Branch.		
7.5	.....	57-filling	Nellie Lake Pit	0.50
			Total miles	86.50

NOTE:—Embankments were repaired wherever necessary between mile posts as shown above. Clay material shown taken from cuts was loaded by "American" railroad ditcher machine and dumped on nearby embankments.

Track—Re-Surfaced.

Between—		Main Line.		Sidings.		
M.P. &	M.P.	Average Lift.	Total Miles.	Average Lift.	Miles	Remarks.
		inches.		inches.		
15.5	26.5	9	11	9	0.54	Sidings Mulock and M.P. 26.
33.75	39	8	5.25	8	0.41	Osborne siding.
Diver	.....	.....	.....	10	0.40	Wye, Diver.
48.5	49.5	5	0.62	.....	.....	Over new bridge.
58.5	59.75	18	0.77	.....	.....	" " bridges.
101	102	7	1.00	.....	.....	
At Hailey	bury	.....	.....	16	0.50	Nipissing Central north from Vendome Hotel.
At New	Liskeard	.....	.....	.....	1.38	Nipissing Central, light surface in places only.
117	119	4	1.81	.....	.....	
121	129	8	8.00	.....	.....	
		8.4	28.45	10.75	3.23	

Main Track Re-aligned and Curves Spiralled.

From M.P.	To M.P.	Average distance moved.	Total Miles.
15.5	26	6 in.	10.5
34	35	4 in.	1.0
101	104	5 in.	3.0
121	129	3 in.	8
		4.5 in.	22.5

Rock Cuts Cleaned and Widened.

Between M.P. &	M.P.	Total miles.	Remarks.
78	79	1	All loose rock and projecting rocks removed from cuts here, in order to clear snow plow wings. This work necessitated chiefly by construction of through siding there in 1913.
82	90	8	All loose rock and mud removed from cuts.
151	164	13	All loose rock and mud taken from rock cuts along this section of road.
		22	.....Total miles.

Rip-Rapping Embankments, etc.

Location.	General Description.
Timagami Lake.....	12 car loads boulders placed along shore of lake to protect embankment from wash of water there.
Cobalt Lake.....	5 car loads boulders placed on lake shore to protect embankments.
Haileybury	Shore of Lake Temiskaming along Nipissing Central Railway rip-rapped with 224 car loads boulders and coarse gravel hauled from Elk Pit, near Earlton, to protect road-bed from wash of lake there.
Montreal River Bridge, Elk Lake Branch.....	5081 cars coarse gravel and boulders hauled from Elk Pit and placed around concrete piers and abutments of steel bridge at this point, to protect from wash of Montreal River.
Charlton.....	Long Lake spur embankments rip-rapped with coarse gravel and boulders hauled from Elk Pit to protect from wash of lake.
M. P. 153½.....	12 cars rip-rapping in the shape of coarse gravel placed around concrete piers of steel bridge.
M. P. 196-80.....	14 cars rip-rapping hauled from Nellie Lake and placed around concrete bridge piers for protection of same.

Ballast, Loaded by Steam Shovel, Pit M. P. 24¾.

Cars.	Purpose.
4,181	Widening Embankments, M. P. 14 to 35.
312	Filling and ballasting, extension Riddle through siding.
6	" for ballast pit sidings, M. P. 24¾.
65	" for extension roadway at Regina Street freight shed, North Bay.
78	" and ballasting new coach storage siding, North Bay.
26	" for extension Feronia station platform.
13	" new road crossing north of Trout Lake station.
4,681	

Ballast, Loaded by Steam Shovel, Pit M. P. 58½.

4,045	Filling bridge M. P. 57.31.
341	" " M. P. 55.94.
19	" " M. P. 59.41.
8	" " M. P. 58.75.
272	" " M. P. 48.90.
109	" over new arch culvert M. P. 42.18.
121	" main line to meet level of new bridge M. P. 48.90.
1,115	" main line to meet level of new bridges M. P. 58.75 and 59.41
34	" beam culvert M. P. 73.71.
16	Repairing embankments between M. P. 40 and 41, account material taken to tamp new telegraph poles.
78	Repairing embankments between M. P. 41 and 47.
120	" " " M. P. 61 and 64.
46	" " " M. P. 65 and 69.
16	" " " M. P. 72 and 73.
16	" " at filled trestle M. P. 75.44.
85	Filling and ballasting pit sidings, M. P. 58½.
36	" station grounds, Timagami.
1,970	Ballasting, M. P. 15 to 27.
860	" M. P. 33 to 39.
94	" through siding, Osborne.
18	" "Y." Diver.
32	" passing siding, Mulock.
61	" passing siding, M. P. 26.
9,512	

Looking down Blanche River from foot of Long Lake.
Thirty-five miles of navigable water here.

Ballast, Loaded by Steam Shovel, Pit M. P. 58½.

Cars.	Purpose.
32	Ballasting Cobalt yard changes in connection with electrification of Kerr Lake Branch for use by N. C. Railway.
15	Ballasting new dynamite delivery spur, M. P. 104.
31	Filling roadway to new dynamite siding, M. P. 104.
33	Ballasting Canadian Pulp and Lbr. Co.'s siding changes, Latchford.
15	Filling for landing platform, south end station platform, Tomiko.
3	" " " Loundsbury's station, near M. P. 6.
10	Supplied B. & B. Dept. for concrete work, culvert M. P. 242.
20	" Contractor Monroe for concrete work on bridges, etc.
2	" B. & B. Dept. for concrete pipe, North Bay.
5	(Harts) Supplied B. & B. Dept. for concrete pipe, North Bay.
2	(Harts) " B. & B. Dept. for concrete work, Feronia bridge.
1	(Hart) " Town of Englehart for concrete work.
11	(Harts) " Messrs. Sutcliffe & Neelands for concrete work, town of Englehart. (B.C.)
9,692	

Ballast, Loaded by Hand, Cassidy Pit.

Cars.	Purpose.
21	Filling land slide, M. P. 111¼, Nipissing Central. (Second Track.)
21	

Ballast, Loaded by Steam Shovel, Cassidy Pit.

Cars.	Purpose.
115	Filling bridge approaches, M P. 153½.
12	Protection of bridge piers, M. P. 153½.
583	Filling through Earlton yard account raising to meet new station level.
67	" in rear of new station, Earlton.
43	" for Extension Thornloe station platform.
90	Ballasting M. P. 122 to 123.
70	Filling land slide, Nipissing Central (Second Track) M. P. 111¼.
165	" for loading siding, market spur, N. C. Railway, Haileybury.
58	" King Street crossing approaches, N. C. Railway, No. Cobalt.
17	Ballasting extension LaRose Mine siding, Cobalt.
9	" Northern Concentrator Co., spur, M. P. 104.
126	Filling and ballast, new car barn sidings, Nipissing Central, North Cobalt.
24	Filling Nipissing Central, North Cobalt, Maintenance.
4	" Argentite crossing, North Cobalt.
13	" new road crossing M. P. 117.
30	Gravelling William Street, North Bay, as per agreement with Town Authorities covering improvements to be made in connection with closing of certain town streets.
43	Filling around Mindoka water tank.
2,638	" through Cobalt yard in connection with changes.
684	Ballasting through Cobalt yard in connection with changes.
25	" Ballasting weigh scales crossover, Cobalt.
899	Filling for extension New Liskeard spur to Government wharf on Lake Temiskaming.
34	Filling Cassidy ballast pit tracks.
34	Widening Lakeview Avenue, Nipissing Central, North Cobalt.
93	Fill and ballast, new turn-out M. P. 104¾ for Nipissing Central.
12	Fill and ballast, new turn-out at Albert Street, Haileybury, for Nipissing Central Railway.
520	Fill and ballast, Thornloe siding changes.
34	Widening embankments between 84 and 85 M. P. and 96 and 97 M. P.
1,244	Ballasting M. P. 121 to 129
34	" M. P. 117 and 118.
17	" M. P. 111½ and 112.
130	" M. P. 101 to 102.
170	Gravelled Lake Shore Road, Nipissing Central, New Liskeard, between and outside rails of Nipissing Central track.

Ballast, Loaded by Steam Shovel, Cassidy Pit.—Continued.

Cars.	Purpose.
17	Ballasting Harris Tie & Timber Co. siding, Nipissing Central Railway, Haileybury.
37	Extension town siding, Uno Park.
50	Bridge approaches M. P. 119.13.
16	Improving Roadway to Dack siding, Charlton Branch.
5	Improving Roadway at Charlton station.
12	Gravel delivered for Township of Dack, for township roads.
66	Gravel supplied Messrs. Sutcliffe & Neeland, Englehart, for concrete work. (B.C.)
5	Supplied Town of Englehart for concrete work. (B.C.)
2	" Wabi Iron Works Co., New Liskeard, for moulding sand.
2	" B. & B. Dept. for concrete work, Feronia bridge.
8,249	

Ballast, Loaded by Steam Shovel, Elk Pit.

Cars.	Purpose.
208	Improvements on Long Lake spur, Charlton; rip-rapping, etc.
46	Filling roadways and grounds in rear of new station, Earlton.
226	Widening main line embankments, M. P. 8 to 12, Elk Lake Branch.
38	Construction road crossings, Elk Lake Branch.
501	Rip-rapping, Montreal River bridge, Elk Lake Branch.
652	Filling timber bridge, M. P. 27, Elk Lake Branch.
48	" siding roadway, Wabun.
16	" bridge approaches, M. P. 11¼, Elk Lake Branch.
8	" platform, shelter station, McCool.
8	" platform, shelter station, Osseo.
44	" and ballast, loading siding, Kennebec.
224	Rip-rapping, lake shore, Nipissing Central Railway, north of Haileybury.
147	Ballasting siding changes, Thornloe.
135	Filling roadway to new town siding, Thornloe.
166	Filling water holes on right of way through Thornloe yard.
36	Widening town siding, Earlton.
35	" extension town siding, Uno Park.
8	Ballasting between M. P. 131 and 132.
9	" extension spur siding, M. P. 132.
94	Raising main track, Nipissing Central Railway, north of Vendome Hotel, Haileybury, to conform ith new level of main road.
78	Filling for extension of New Liskeard spur to Government wharf on Lake Temiskaming.
31	Ballast, Canadian Pulp & Lbr. Co. siding, Latchford.
24	Raising Long Lake spur over new flume crossing, Charlton.
7	Widening roadway to Dack siding, Charlton Branch.
7	Filling roadway to piling ground, Chamberlain.
18	Ballasting Chamberlain through siding.
10	Improving station roadways, Englehart.
16	Filling extension Wabewawa spur siding.
8	Ballasting Henrofskey's spur siding, M. P. 145¼.
7	" T. & N. O. spur siding, M. P. 149½.
2,855	

Ballast, Loaded by Steam Shovel, Nellie Lake Pit.

Cars.	Purpose.
993	Ballasting Joint Section, New Entrance to Cochrane Terminals.
143	Filling for Cochrane Terminals.
992	Ballasting for Cochrane Terminals.
176	" Iroquois Falls Branch.
140	Filling new T. & N. O. sidings, Iroquois Falls.
16	" Abitibi Pulp & Power Co.'s sidings, Iroquois Falls.
313	Ballasting Abitibi Pulp & Power Co.'s sidings, Iroquois Falls.
96	Filling roadway to Nahma siding.

Ballast, Loaded by Steam Shovel, Nellie Lake Pit.—Continued.

Cars.	Purpose.
13	Ballasting Northern Canada Supply Co.'s siding, Timmins.
16	" the Geo. D. Hamilton spur, Monteith.
48	" extension Wataybeag spur siding.
20	Filling, for new freight shed siding, Porquis Jct.
14	" for pier protection, bridge M. P. 196.80.
76	" Russell Creek trestle, M. P. 205¾.
18	" over new culvert, M. P. 242.
57	" embankments M. P. 7½, Porcupine Branch.
8	" public road crossing near Nahma.
5	Supplied B. & B. Dept. for filling approaches to bridge Monteith.
3,144	

Clay Material, Excavated by Steam Shovel, Cochrane.

Cars.	Purpose.
895	Filling for Joint Section, new entrance to Cochrane Terminals.
931	" for Cochrane Terminals.
21	" for station lawn, Cochrane.
1,847	

Cinder Ballast.

North Bay.

Cars.	Where Unloaded.	Purpose.
4	North Bay	Filling at B. & B. carpenter shop.
2	" "	Drainage and ballast, Canadian Northern Railway diamond crossing.
51	" "	Ballasting yard tracks.
2	" "	Emergency rail stand in yard.
2	" "	Cinder path parallel with freight shed siding for use of employees.
1	" "	Lorry transfer track, main line to material siding.
21	" "	Filling around old carpenter shop for piling ground, etc.
6	" "	Floor, old carpenter shop.
20	" "	Ballasting new coach siding.
2	" "	Stop block, coach sidings.
5	" "	Roadway to freight shed, Regina Street.
1	Trout Lake	New public road crossing.
7	Widdifield	Ballasting new town siding.
4	"	Roadway to new town siding.
6	M. P. 5¼	Tile underdrainage of cuttings.
1	Feronia	Ballasting siding.
1	Otter	Landing platform.
5	M. P. 45½	Filling sink hole.
20	M. P. 52	Filling sink hole.
1	Doherty.....	Hand-car house.
1	Timagami	Hand-car house.
1	M. P. 50¾	Filled culvert.
9	M. P. 123-133	Tile underdrainage cuttings.
1	Thornloe	Crossing of new sidings.
2	"	Extension station platform.
2	M. P. 95½	Tile underdrainage cutting.
28	M. P. 183-186	" cuttings.
4	Romare	" and station platform.
8	Connaught	" and station platform.
5	Cochrane	Roadway at new station.
1	M. P. 1 Porcupine Branch	Farm crossing.
1	M. P. 199½	" "
1	M. P. 132¾.....	" "
1	Elk Lake	Engine shed.
2	M. P. 104	Concentrator Co.'s siding.
2	Cobalt	Extension LaRose siding.
1	"	Crossing.
1	M. P. 92¼	Ballast.
2	M. P. 73¼ and 74¼.	"
235		

Kerr Lake Junction.

1	Cobalt	Extension LaRose siding.
1	"	Stop block, Queen City Oil Co.'s spur.
2	"	Filling yard.
2	M. P. 102	Filling.
4	Kerr Lake Branch .	Ballast.
1	Kerr Lake yard	Stop block.
11		

Elk Lake.

4	M. P. 27 E. L. B. ..	Widening embankment.
4		

Englehart.

4	Englehart	Filling at car repair siding.
3	"	Ballasting yard tracks.
5	"	Station grounds.
1	"	Town water supply.
29	North Cobalt	Ballasting Nipissing Central Railway.
2	" "	Crossings, Nipissing Central Railway.
1	" "	Extension Northern Lumber Co.'s spur.
13	" "	Nipissing Central car barns.
2	Latchford	Filling old weigh scales pit.
1	"	Ballast yard.
1	M. P. 110	Passenger landing, Nipissing Central Railway.
51	M. P. 123-133	Tile underdrainage.
25	M. P. 183-186	Tile underdrainage.
1	M. P. 143	Tile underdrainage.
1	Wabun	Roadway to siding.
5	Thornloe	Roadway to siding.
2	"	Extension station platform.
1	M. P. 122	Landing platform.
1	Dane	Extension station platform.
1	Osseo	Shelter station platform.
1	Dane	Station roadways.
1	Chamberlain	Repairs to roadway to siding.
4	M. P. 141¼	Washout.
3	M. P. 137-139½	Ballast.
1	M. P. 132	Ballast.
3	M. P. 115½	Ballast.
11	M. P. 140-141	Ballast.
9	M. P. 153½	Approaches to new bridge.
3	M. P. 162¾	Repairs to dump over culvert.
1	M. P. 176½	Filling.
187		

Cochrane.

11	Cochrane	Filling at round house.
1	"	Filling at tank.
1	"	Filling at ice house.
1	"	Filling around section dwelling.
2	"	Roadway to shed.
3	"	Roadways to new station.
2	"	Ballast sidings.
4	Wataybeag	Station platform.
1	Matheson	Section tool house.
2	Porquis Jct.	Section tool houses.
1	Nellie Lake	Section tool house.
1	Holland	Section tool house.
1	Nahma	Landing platform.
2	Belleek	Shelter station platform.
1	M. P. 203¾	Culvert.
1	Connaught	Tile underdrainage and station platform.
3	Timmins	Ballast, Canadian Mines Finance Co. spur.
38		

Timmins.

1	Timmins	Repairs Northern Canada Supply Co. siding.
5	"	Filling and ballast, yard tracks.
5	"	Widening dump east of bridge.
1	"	Section tool house.
1	Porcupine	Section tool house.
1	Porquis Jct.	Section tool house.
9	M. P. 34-40 P. N. B..	Filling and ballast.
23		

Other Materials Handled by Work Trains.

Cars. Loaded.	Cars. Unloaded.	Material.	Purpose.
23	.....	Ties	L. E. & N. Railway, Brantford, Ont.
.....	126	"	Renewals.
.....	7	"	Cochrane Terminals Construction.
.....	1	"	Extension Uno Park siding.
2	2	"	Cassidy pit sidings.
.....	1	"	Pit sidings, M. P. 58½.
.....	43	New rails	Renewals between M. P. 15¾ and 35.
1	3	Old rails	Construction Cochrane Terminals.
.....	1	Track bolts	Renewal rail, M. P. 15¾ and 35.
.....	4	Cont. joints	Renewal rail, M. P. 15¾ and 35.
.....	3	Track materials ...	New turn-out M. P. 104¾, Nipissing Central.
.....	1	Switch materials ...	Pit sidings, M. P. 58½.
.....	1	Switch materials ...	Wm. Milne & Sons new siding, M. P. 73.7.
.....	1	Cement	For contractor Monroe.
.....	1	Refcg. rods	For contractor Monroe.
52	.....	Clay	Cleaning land slide M. P. 111 (April).
.....	41	"	Widening M. P. 112.
.....	11	"	Crossing M. P. 113.
78	247		

Material Handled by Work Train with "American" Railroad Ditching Machine.

Cars. Loaded.	Cars. Unloaded.	Material.	Purpose.
38	38	Clay	Cleaning land slides, M. P. 110¾ and 112.
750	.....	"	Cleaning clay cuts and ditching, 1st div.
.....	433	"	Widening embankments, 1st division.
.....	327	"	Filling for new sidings, Thornloe.
1,662	1,602	"	Cleaning clay cuts and ditching, 2nd division, and widening main line embankments.
30	30	"	Cleaning land slide, M. P. 209¾ and widening embankments.
167	217	"	Cleaning clay cuts, and widening embankments, Charlton Branch.
268	268	"	Cleaning clay cuts and widening embankments, Elk Lake Branch.
110	.....	Sand	Cleaned from cuts, M. P. 180-184.
.....	77	"	Refilling filled trestle, M. P. 179.
.....	22	"	Filling for Sesikinika station platform.
.....	11	"	Filling station driveway, Bourkes.

Material Handled by Work Train with "American" Railroad Ditching Machine.—Continued.

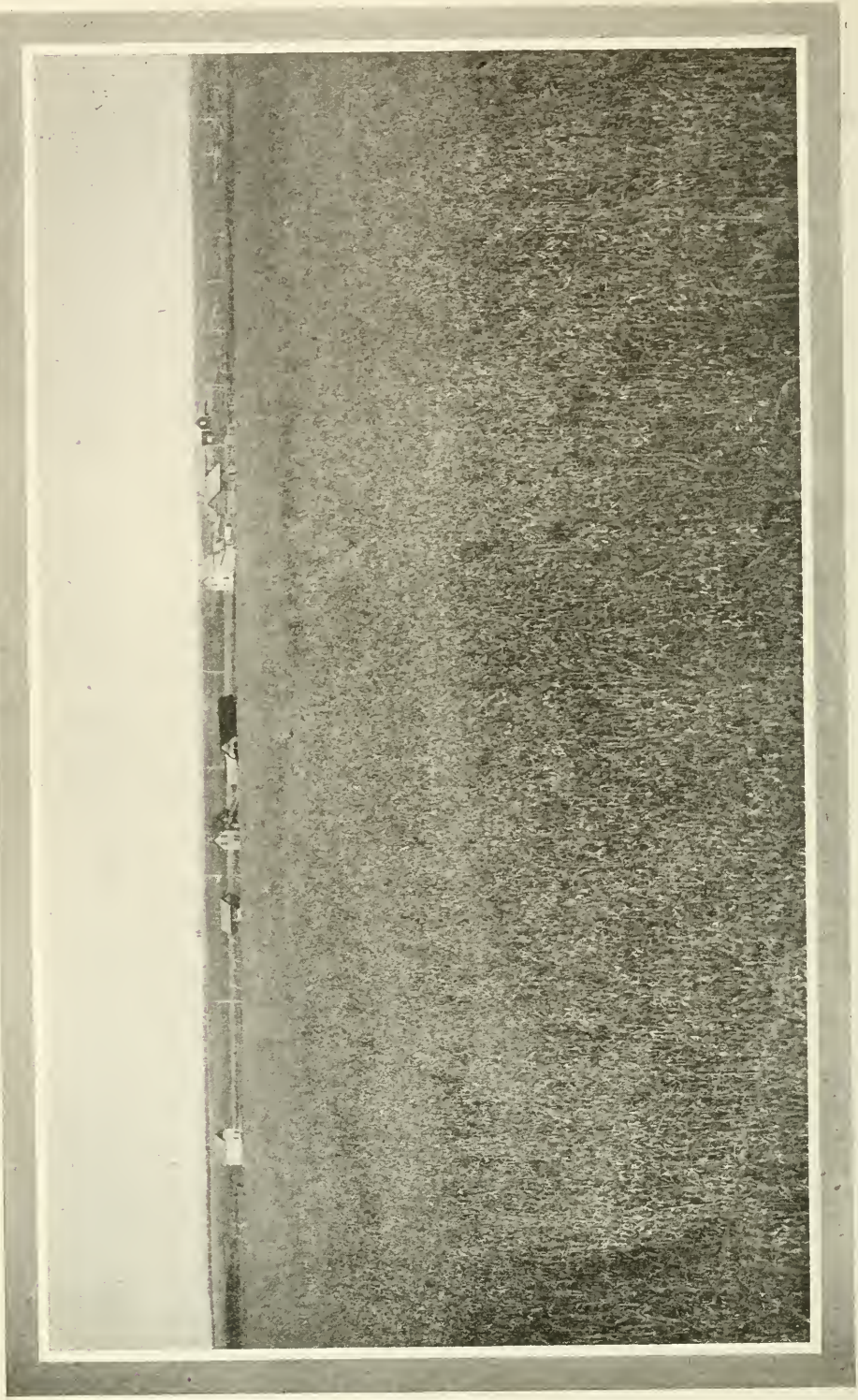
Cars.		Material.	Purpose.
Loaded.	Unloaded.		
215	.....	Loam and muck ...	Taken from cuts, M. P. 54-79 for filling.
.....	127	" "	Filling and dressing surface of Timagami station grounds.
.....	88	" "	Widening embankments and dressing cut slopes, M. P. 54-61.
.....	5	Cinders	Tile underdrainage and station platform, Ramore.
.....	3	"	Tile underdrainage and station platform Connaught.
.....	40	"	Tile underdrainage cuttings, M. P. 182-186.
180	43	Ties.....	Renewals.
12	11	"	Construction T. & N. O. sidings, Iroquois Falls.
24	7	"	Loaded from abandoned Nipissing Central Railway, Cobalt to North Cobalt.
2	.....	"	Construction New Liskeard spur to wharf.
1	.....	"	Canadian Mines Finance Co. spur, M. P. 39.4, Porcupine Branch.
1	.....	"	Sold to Messrs. Morrow & Beatty.
1	.....	"	Extension Riddle through siding.
5	.....	"	Siding changes, Cobalt, in connection with electrification Kerr Lake Branch.
3	3	"	Thornloe siding changes.
8	.....	"	Construction Cochrane Terminals.
1	1	"	New freight shed siding. Porquis Jct.
1	.....	"	T. & N. O. spur siding, M. P. 149½.
1	.....	"	Canadian Pulp & Lbr. Co.'s spur, Latchford.
1	.....	"	Extension Wabewawa spur.
101	20	Rails	Renewals.
9	4	"	Material taken from abandoned Nipissing Central line, Cobalt to North Cobalt.
11	.....	"	Surplus material from Construction Elk Lake Branch.
1	1	Angle bars	Material taken from abandoned Nipissing Central line, Cobalt to North Cobalt.
1	.....	" "	Renewals.
1	1	Switch material ...	Material taken from old Nipissing Central line, Cobalt to North Cobalt.
3	.....	Track materials	Old diversion at sink hole, M. P. 23½, Porcupine Sub-division.
1	.....	Old car trucks	Nipissing Central Railway.
1	.....	Fence materials	Surplus from construction Iroquois Falls Branch.
1	.....	Fence posts	Fencing additional lands, Thornloe.
6	.....	" "	Fencing, 2nd division.
7	6	Trolley poles.....	Material loaded from abandoned Nipissing Central line, Cobalt to North Cobalt.
6	6	Old tel. poles	Cleaning right of way; these to be cut up for fence posts.
1	2	Bridge timber.....	Material lifted from abandoned Nipissing Central line.
2	.....	" "	From filled trestle, M. P. 3½, Porcupine Branch.
1	.....	" "	Surplus from Elk Lake Branch construction.
7	.....	" "	From filled trestles, etc., between M. P. 55.36 and 75.44.
12	.....	" "	From bridge M. P. 153½.
10	.....	" "	From bridge M. P. 196.80.
.....	2	Vitrified tile	Tile underdrainage, M. P. 182-186.
5	.....	Stone	Retaining wall or rip-rap, Cobalt Lake.
12	.....	"	Clearing station and dwelling grounds Timagami, in connection with improvements.
.....	12	"	Rip-rapping, Timagami Lake.
3,680	3,407		

Other Materials Handled by Hand.

Cars.	Material.	Loaded at.	Unloaded at.	Purpose.
11	Crushed rock..	Cobalt	Haileybury ...	Paving Ferguson Avenue, along Nipissing Central tracks, south of Main Street.

The above rock was loaded by Engineer Code of Township of Coleman, from Cobalt mines.

4	Black muck...	Englehart	Englehart	Green-house, gardens, etc.
2	Black muck...	Englehart	Latchford	Flower beds, lawn, etc.



Field of Oats—Farm of S. Jewell, East Road, New Liskeard.

ANNUAL REPORT BRIDGE AND BUILDING DEPARTMENT

Year Ending October 31st, 1914

W. J. OLDHAM, BRIDGE AND BUILDING MASTER

Most of the new work for the year 1914 was built by contract. The following work was performed by our own forces:

Buildings.

North Bay.

General Offices.—The windows on the north side of this building were all equipped with the King Frost Strip. The main door leading to Superintendent Account's office was cut in two and a counter top placed on the lower portion. New cupboards and shelving were placed in the office of the Traffic Accountant. In the cellar shelving and cupboards were installed for the purpose of storing telephones and batteries.

Freight Shed.—General repairs were made to roof, doors and floor of freight shed. Eighty-four ¼ in. steel plates 30 in. by 10 ft. were made fast with screws to the top of the outside of transfer platform to facilitate the trucking of freight to and from the cars.

North Bay Junction.

Roundhouse.—The interior of the building was whitewashed and the woodwork painted. A complete new pine floor was put down in the machine shop portion, while a creosoted pine floor was laid in the balance of the building. The three boilers in boiler room were overhauled, new fire brick being used throughout. One of the engine pits was fitted up for installing electricity in the steel coaches.

Coal Chutes.—The approach trestle was surfaced and lined, and posts renewed where it was found necessary. A new covering was put over eight of the chutes, and general repairs made to the aprons.

Stores Building.—A new frame coal house 14 ft. by 10 ft. by 52 ft. was erected at the south-west end of casting building. A room 14 ft. long was partitioned off for storing waste, balance of the building used for storing coal. New pigeon holes were made and installed in stationery room, general repairs were made to platform.

Coach Shop.—The boilers in engine room were completely overhauled. New track timbers were put in and a new pine plank floor laid on top of them. General repairs were made to roof and doors.

General Offices.—New pine floors were laid in the offices of the Master Mechanic and General Roadmaster. The interior of all offices were cleaned and painted.

Yard Office.—Boxes were made and installed for the staff system between T. & N. O. Railway and C. P. R. Railway. General repairs were made to platform. New eavetroughs were made and put on roof of transfer platform on rip track.

Stock Yard.—General repairs were made to fence, gates and water-troughs, and all fences were whitewashed. The water pipe line between tank and stock yard was covered with sufficient earth to keep the pipes from freezing in the cold weather.

Turntable.—The timber circle was renewed. It was found necessary to put 22 steel plates ½ in. by 10 in. by 22 in. between the rail and timbers to keep the timber from cutting.

Trout Mills.—General repairs were made to station and platform.

Lounsberry.—A new shelter station 10 ft. by 16 ft. was built for the accommodation of the campers on Trout Lake.

Feronia.—Light repairs were made to station roof and platform.

Widdifield.—The freight shed was moved 16 ft. away from the station, and station extended 10 ft. The new portion was divided into two equal parts, giving the Agent an additional room for living quarters, and extending the ticket office. The space between the station and freight shed was then closed in, adding 6 ft. more to the freight shed. The platform was extended 16 ft.

Tomiko.—General repairs were made to station and platform.

Diver.—Light repairs were made to station and platform.

Redwater.—Light repairs were made to station and platform.

Temagami.—The door leading from general waiting room to Agent's office was cut in the centre and a counter placed on lower portion. The foundation of restaurant was repaired. Four rooms upstairs were cleaned and kalsomined, the stairs and floors of the restaurant cleaned and painted.

Latchford.—The platform was repaired and a new railing put around it.

Gillies Depot.—Light repairs were made to station doors and platform.

Cobalt.—General repairs were made to all doors and windows. Alterations were made to news stand, new wire screen being used to close in the space above the woodwork. The track scales were moved from Latchford and installed here on a concrete foundation. Repairs were made to concrete floor in freight shed, two new freight shed doors put in for the purpose of handling plate glass and the sewer system overhauled. A hardwood floor was laid in freight shed office, and new shelving installed for storing old records.

North Cobalt.—General repairs were made to station doors and platform.

Haileybury.—A water pipe line was laid from station to flower garden, and freight shed connected up from this line. General repairs were made to station platform, and to freight shed.

New Liskeard.—Station platform was surfaced and portions of it renewed.

Uno Park.—A new portable stock chute was made at North Bay Junction and shipped here. The foundation of station was jacked up and timber blocking put under. A pipe line 1,050 ft. long was put in from the well to the station, and necessary plumbing installed in station to give a good water service.

Thornloe.—In order to give a better drainage system from the station, it was found necessary to repair the drains, and raise the concrete floor in the basement. A new cinder walk 85 ft. long was added to the south end of the platform.

Earlton.—A new freight shed 30 ft. by 60 ft. with a platform 350 ft. long was built.

Heaslip.—Light repairs were made to station and platform.

Englehart.—General repairs were made to station doors and windows. A 6 in. tile drain 130 ft. long was laid from station to town sewer.

Roundhouse.—General repairs were made to doors, windows and smoke jacks.

Freight Shed.—Five new lamp posts were erected at intervals along platform for the installation of electric lights.

Coal Chutes.—General repairs were made to chutes, and the approach trestle surfaced and lined.

Turntable.—A new set of I beams was put in, and general repairs made.

Pumphouse.—The pumphouse at the river was destroyed by fire on April 27th and a temporary one erected on the old site, pending a better location of a permanent one.

Krugerdorf.—A new railing the complete length of the platform was built.

Swastika.—General repairs were made to station and platform.

Dane.—Fifty feet of cinder walk was added to the south end of the platform, and a new oil house 7 ft. by 8 ft. built.

Matheson.—A new door was cut in freight shed, and general repairs made.

Porquis Junction.—A room 8 ft. by 8 ft. was partitioned off in the station for a telephone office, and a counter with cupboards underneath built. A new freight shed 30 ft. by 60 ft. with an office in one end was built.

Cochrane.

Station.—Before this building was taken over by the Traffic Department in January last, our forces built all the necessary counters, cupboards, shelves and partitions required. The whole building was cleaned, the walls and ceilings kalsomined, the woodwork painted and the desks and counters varnished. A platform 16 ft. by 250 ft. built.

Roundhouse.—New porches were built around the main entrance doors. Two new doors were put on the building used for storing coal for the boiler room, and general repairs made to smoke stacks.

Coal Chutes.—The approach trestle was surfaced and lined, and posts renewed.

Freight Shed.—This building was moved from old site to a more suitable location and put on a good substantial foundation. The outside was sheeted with corrugated iron. Shelves and cupboards were installed in freight shed office, the interior cleaned and painted. A platform 8 ft. by 150 ft. was built at the front of the building, and one 14 ft. by 38 ft. at the end. Stairs and railing leading from freight shed office with a platform from office to town sidewalk were built.

Porcupine Branch.

Porcupine.—The old express and baggage room was converted into living quarters for the Agent, provision being made for a cellar under this portion. General repairs were made to station and platform.

South Porcupine.—The station foundation was repaired.

Schumaker.—The station foundation was jacked up, and a new coal bin 10 ft. by 20 ft. built.

Timmins.—The battery room in station was converted into a living room for the agent by sheeting the inside with Georgia pine and putting down a new pine floor. New shelves were put in the station, and minor changes made to the ticket office. The woodwork was painted and the counters varnished. A portable stock chute was made by our forces at North Bay Junction and shipped here.

Charlton Branch.

Charlton.—Coal bin was moved to a more suitable location, and general repairs made to station and platform.

Elk Lake Branch.

Elk Lake.—General repairs were made to station and platform, and a new portable stock chute built. A shed 10 ft. by 24 ft. was built at station for storing coal.

A new engine shed 20 ft. by 85 ft. with engine and cinder pits was erected, and a complete drainage system put in.

Kerr Lake Branch.

Kerr Lake.—Water was installed in the station by running a ¾ in. pipe line from Kerr Lake mine to station. Station platform was extended 18 ft. and a new railing put around it. The interior and exterior of the building was painted.

Iroquois Falls Branch.

Iroquois Falls.—Owing to the great amount of work going on at this point, it was found necessary to erect the following buildings:

A temporary station 12 ft. by 36 ft. with 36 ft. of platform.

A freight shed 30 ft. by 60 ft. with platform 8 ft. by 92 ft. In this building an office 10 ft. by 30 ft. was partitioned off and the necessary fixtures installed.

Engine shed 20 ft. by 85 ft. with complete system of drainage. In one end of this shed a room 10 ft. by 20 ft. was fitted up as a bunk room for the trainmen.

An oil house 7 ft. by 8 ft.

A water line 350 ft. long of 4 in. cast iron pipe was laid from town main to new stand pipe.

Portable stations 9 ft. 6 in. by 30 ft. were built at the following places:

Belleek.
Connaught.
Osseo.
McCool.
Kenebeck.
Wabun.

Tanks.

North Bay Junction.—A new 4 in. gate valve put in, and pipe line repaired.

Widdifield.—Pumphouse was moved to a more suitable location.

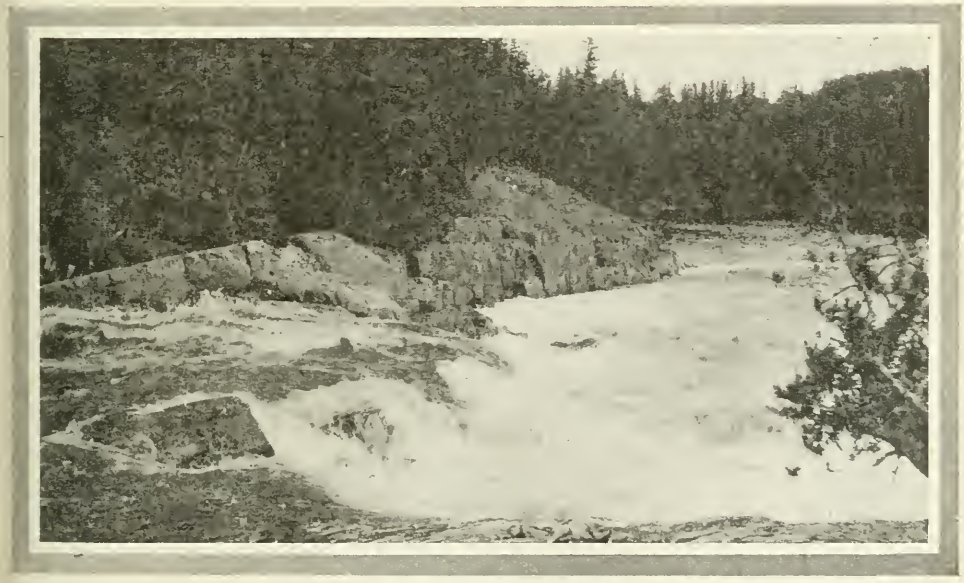
Tomiko.—Light repairs were made to tank and pumphouse.

Redwater.—It was found necessary to cut 6 ft. off the end of the coal dock.

Temagami.—The intake pipe was extended into the lake 200 ft. for the purpose of getting a purer supply of water. Light repairs were made to boiler house and coal chutes, and pumphouse painted.

Latchford.—A new pumphouse 12 ft. 6 in. by 20 ft. 6 in. with a concrete floor was built, and a new pipe line 230 ft. long was put in from the river to the pumphouse. The coal shed was moved to the site of the new pumphouse.

Englehart Station—Greenhouse and Grounds. A Divisional Point on the T. & N. O. Ry.



Indian Chutes, Montreal River.

Englehart.—A new 8 in. wrought iron pipe was laid from river to pumphouse, and the hydrant boxes throughout the yard lowered.

Swastika.—Light repairs were made to ram.

Bourkes.—On May the 4th the tank was destroyed by fire. A new 40,000 gallon tank was erected on the old concrete foundation which was but slightly damaged.

Matheson.—The structure was renewed. Owing to the dam put in by the Abitibi Pulp and Paper Company which caused the water to rise, we had to move pumphouse, coal shed and coal chutes back 80 ft. to clear high water mark.

Cochrane.—The walls of tank were straightened, frame braced, outside sheeted with two ply paper and cove siding, inside with 1 ply paper and shiplap. The roof of pumphouse was covered with Canada Plate Iron, new concrete floor put in and inside sheeted with cove siding.

Porcupine Branch.—Temporary tank at Connaught was sheeted and floored.

Elk Lake Branch.—General repairs were made to tank and pumphouse at Elk Lake.

Dwellings.

Widdifield.—Light repairs were made to section house.

Mulock.—All walls and ceilings of section house were cleaned and kalsomined, and inside woodwork painted two coats.

Otter.—A new concrete foundation was put under section house, cellar excavated and drained. The whole of the interior was overhauled, lathed, plastered and painted.

Redwater.—Light repairs were made to stairs of section house.

Rib Lake.—The plaster in section house was repaired.

Latchford.—The interior of Agent's house was cleaned and kalsomined. The beam filling in section house was renewed.

Cobalt.—In Agent's house a new concrete floor was laid in cellar, and a hardwood floor put in the downstairs portion.

Haileybury.—The section house foundation was repaired, a new floor laid in the kitchen, the walls lathed and plastered, electric lights installed and the woodwork of the interior painted.

Uno Park.—Water was installed in section house by connecting on to pipe line running from well to station.

Englehart.—A new sink was installed in section house.

Bourkes.—General repairs were made to doors and windows of section house.

Cochrane.—The interior of section house was lathed and plastered, and woodwork painted. A new concrete foundation was put under main portion of Locomotive Foreman's dwelling, cellar excavated and concrete floor laid. A new hot water heating system was installed.

Porcupine Branch.—The interior of section house at Porcupine was cleaned and painted. The old construction camps at Porcupine were taken down with the exception of one which was moved across the track and fitted up for bachelor's dwelling.

Porquis Junction.—A new standard section house was built to replace the one destroyed by fire.

General Work.—All tool houses in connection with our section houses were painted our standard colors.

The boarding camps at Cassidy, Nellie Lake and Redwater pits were covered with Cochrane Ready Roofing, and doors and windows repaired.

The old car barns in connection with the Nipissing Central Railway at North Cobalt were taken down and material shipped to North Bay Junction.

In addition to what has been already mentioned, our paint gang painted all new buildings erected during the last season, all switches, train order boards, semaphores, signs, folder racks and elevation posts.

In season, all storm doors and windows, screens and screen doors were put in place on the different buildings, and repairs made to all heating systems where it was found necessary.

During the year, our forces at North Bay Junction fitted up 22 boarding cars, repaired 75 hand cars, 31 lorries, 19 speeders and all tools for Road Department and B. & B. Department. They painted for the Mechanical Department 1 steam shovel and 3 unloaders, installed switch boards in roundhouse and time clock in Car Foreman's office. For the Telegraph and Telephone Department, they made battery boxes, cable boxes and telephone booths. They handled 906,590 feet of different kind of lumber and 21,813 feet of piles, and made 348 pieces 30 in. by 3 ft. and 122 pieces 24 in. by 3 ft. concrete pipe.

Bridges and Trestles,

Bridge.....M.P.	7.96.....	The concrete abutments were reinforced.
Trestle.....M.P.	25.71.....	Trestle was surfaced and lined, 3 new bents put in, and deck repaired.
Trestle.....M.P.	48.90.....	Contract for concrete abutments was let to Mr. F. Munroe, Contractor, and our forces did the excavating for the diversion of the stream, put in the steel span, and built the concrete ballast walls.
Trestle.....M.P.	55.94.....	A double line of 30 in. concrete pipe was put in, and trestle filled.
Trestle.....M.P.	57.31.....	Trestle was surfaced and lined, and guard rails removed. It was filled with the exception of 28 ft. which was prepared for the water course.
Trestle.....M.P.	58.75.....	Contract was let for concrete abutments to Mr. F. Munroe, Contractor, and our forces put on the concrete deck, and built the concrete ballast walls.
Trestle.....M.P.	59.41.....	Contract for concrete abutments was let to Mr. F. Munroe, Contractor, and our forces put on the concrete deck, and built the concrete ballast walls.
Trestle.....M.P.	59.18.....	The abutments under steel bridge were raised, and concrete ballast walls built.
Trestle.....M.P.	71.37.....	Trestle was surfaced and lined, and 5 new bents put in.
Trestle.....M.P.	119.00.....	Approaches were filled, and ties and stringers taken out.
Bridge.....M.P.	138.00.....	Bridge was surfaced and lined, and steel portion painted.
Bridge.....M.P.	146.00.....	Approaches to bridge were surfaced.

Bridge.....M.P. 153.50.....Steel spans were erected on concrete piers built by our forces, and all old timber taken apart and shipped to Englehart.
Trestle.....M.P. 162.08.....Trestle was surfaced and lined, mud sills, girths and braces put in, and deck renewed.
Trestle.....M.P. 163.18.....Trestle was surfaced and lined, mud sills put in, and deck reinforced.
Bridge.....M.P. 164.03.....Deck was repaired.
Bridge.....M.P. 164.45.....Deck was repaired.
Trestle.....M.P. 168.50.....Trestle was surfaced and lined, and deck repaired.
Trestle.....M.P. 175.00.....Trestle was surfaced and lined and deck renewed.
Trestle.....M.P. 178.90.....Trestle was surfaced and lined, two new bents put in and deck repaired.
Trestle.....M.P. 181.25..... Trestle was surfaced and lined and deck repaired.
Bridge.....M.P. 196.80.....Steel spans were erected on concrete piers built by our forces, ballast walls built and grading around piers completed. The old timber was taken apart and shipped to Englehart.
Trestle.....M.P. 206.25.....Contract was let to Messrs. Clark & Clark, Contractors, to enlarge arch, and our forces surfaced and lined trestle.
Bridge.....M.P. 208.00..... Steel guard rails were put on this bridge.
Bridge.....M.P. 218.00.....Concrete ballast walls were built, stringers taken out, steel guard rails put on and steel portion of bridge painted.

Kerr Lake Branch.

General repairs were made to all trestles on this branch.

Elk Lake Branch.

Bridge.....M.P. 11.60.....The trestle was surfaced and lined, new steel guard rails put on and the clay removed from the bents to keep the frost from heaving them.

Charlton Branch.

Trestle.....M.P. 1.25.....Trestle was surfaced and lined, posts and sills renewed.
Trestle.....M.P. 6.25.....Trestle was surfaced and lined, and mud sills renewed.
Trestle.....Long Lake.....Trestle was surfaced and lined, approaches raised, new mud sills, blocking and caps put in.
Trestle over waterway to Charlton power-house was raised and new deck put on.

Porcupine Branch.

Trestle.....	M.P. 17.50.....	Trestle was surfaced and lined. Steel girders formerly used at bridge M.P. 153.50 were put in here on a pile foundation to increase the opening for the benefit of lumber men in bringing logs to their mills. Three piles were driven about 4 feet off each bent, then covered with steel plates to protect the bents from floating ice.
Trestle.....	M.P. 39.00.....	Trestle was surfaced and lined, steel guard rails put on.
Trestle.....	M.P. 40.02.....	Two bents were removed and rebuilt to increase the roadway at this point.

Culverts.

Culvert.....	M.P. 16.71.....	The concrete floor of this culvert was renewed.
Culvert.....	M.P. 33.02.....	A railing was put on this culvert for the protection of trainmen.
Culvert.....	M.P. 50.85.....	Two new 30 in. concrete pipes were put in here to replace two broken ones.
Culvert.....	M.P. 73.71.....	A double line of 30 in. concrete pipe was put in and culvert filled.
Culvert.....	M.P. 78.60.....	A railing was put on here to protect trainmen.
Culvert.....	M.P. 103.00.....	General repairs were made.
Culvert.....	Englehart Yard..	Timbers were renewed.
Culvert.....	M.P. 242.00.....	A 6 ft. flat topped reinforced concrete culvert on a pile foundation was built.

Kerr Lake Branch.—General repairs were made to culverts at Kerr Lake Mine, Kerr Lake Siding and Kerr Lake.

Porcupine Branch.—The following culverts on Porcupine Branch were redecked and surfaced: M.P. 9.21, 13.45, 16.20, 20.45, 23.24, 24.65, 25.17, 27.27, 29.75, 30.42, 32.17, 34.02, 34.27 and 36.75.

How Foreigners Succeed—Fritz Wiedensohler's wife helping in the hay harvest, Long Lake.

Ploughing on Farm of Eli Thib near Charlton. Six years ago this was all bush.

ANNUAL REPORT TELEGRAPH AND TELEPHONE DEPARTMENT

W. J. KELLY, S. OF T. & T.

Main Line:

The reconstruction of telegraph and telephone line on First Division, namely, Mileage 20 to 48½, was completed during the summer.

This work consisted of an entirely new pole lead of 40 poles to the mile with 2 six pin cross-arms attached and a third gain cut for future use; six telegraph and three telephone circuits were transferred from old line to new poles; the old poles were taken down, piled conveniently for loading and turned over to Road Department to be cut into fence posts.

Between Mileage 250 and Cochrane, a distance of three miles, new pole lead was completed; three telegraph and two telephone circuits were transferred to new pole lead; 225 feet of No. 20 conductor underground cable was laid from office pole into new Union Station; train despatching, commercial and railway telegraph instruments moved from old station and installed in new Union Station.

Commercial Telephone Service Extensions:

Connections were made at Cochrane with the Cochrane Telephone Company, and at South Porcupine with the Porcupine Telephone Company, an agreement being entered into with these companies, whereby their subscribers would be given direct long distance connections with the Commission's lines and its connections.

At Uno Park connections were made with the Highland Telephone Company, a rural telephone line, and the 90 farmers who have telephones installed in their houses can now get direct long distance connections to any long distance telephone office in Ontario.

From Swastika a metallic circuit was strung to Sesekinika, a distance of 11 miles, and local toll offices installed at Sesekinika and Kenogami. All along distance connections may be given these points through Swastika office.

A metallic circuit was strung from Porquis Junction to Connaught, and toll office installed at the latter point with long distance connections through Porquis Junction office.

At the beginning of the year the telephone business of the Elk Lake Telephone Company was taken over by the Commission. Their lines consisted of a central exchange at Elk Lake, a long distance line Elk Lake to Gowganda, and an exchange at Gowganda. Owing to their system being all grounded lines and it being impracticable to make long distance connections with our metallic circuits, it was decided to reconstruct the entire Elk Lake telephone system. The town exchange at Elk Lake has been equipped with a new 100 line switchboard, and a first class pole lead was built throughout the town; metallic circuits strung to the different subscribers, residential and business telephones rewired.

Owing to the lateness of the season, the construction of the Elk Lake to Gowganda line was postponed until 1915.

In May, 1914, Iroquois Falls station was opened and long distance telephone connections made with Porquis Junction; telegraph instruments being installed for both railway and commercial business.

The local exchange business at Swastika owned by the Temiskaming Telephone Company was taken over in June, 1914, and is now operated by the Commission.

Operation and Maintenance:

Effective August 1st. the Commission authorized a reduction of 20 per cent. in the telegraph rates. A similar reduction was also made in the long distance telephone rates, but revised tariff was not put into effect until November 1st, 1914.

During the year the following commercial telegraph business was handled:

Hand messages sent	76,559	
Hand messages received	62,061	
		138,620
Cables sent	1,581	
Cables received	613	
		2,194
Cables, words sent	34,978	
Cables, words received	9,722	
		44,700

During the year no serious interruptions occurred to either telegraph or telephone lines, and although bush fires raged along the right-of-way during the summer months, but 19 poles in all were destroyed.

Temporary telegraph and telephone offices were opened for railway purposes at the following points:

Mileage No. 25—Ballast Pit.
Rabbit Creek " "
Cassidy " "
Nellie Lake " "

Summarizing the year's work, would report the following:

31 miles of new pole lead constructed.
363 miles wire transferred.
42 miles toll line extensions made.

The following table shows the telegraph and telephone wires in operation:

Wire.	Gauge.	Weight	Service.	Miles.
Iron	No. 8 B. W.	378	Telegraph	1,407
Iron	No. 8 B. W.	378	Party Telephone	50
Iron	No. 12 B. W.	165	Long Distance Telephone	71
Iron	No. 12 B. W.	165	Local Exchange	85
Copper	No. 9 B. & S.	210	Telephone Train Despatching	574
Copper	No. 10 N. B. S.	263	Long Distance Com.	658
Copper	No. 12 B. & S	105	Local Party Line	231
Style B.	No. 16 Twisted	pair	Local Exchange	38,000 feet.

Total mileage—Wire, 3,076.
" " —Poles, 343.

All of which is respectfully submitted,

W. J. KELLY,
Supt. Telegraph and Telephone.

Result of Two Hours' Hunt. Tough Brothers, Swastika.

A Frosty Morning at the Roundhouse, Englehart.

ANNUAL REPORT OF SUPERINTENDENT OF TRAFFIC

Year Ending October 31st, 1914

W. A. GRIFFIN, S. OF T.

During above period, thankful to report we have been free from accidents of a serious nature. Every appliance of proved value, calculated to secure safety, has been adopted, and every precaution taken in handling of trains.

The handling of trains by telephone (referred to in Annual Report 1913, folio 81) continues to give entire satisfaction.

January 21st, new station, Cochrane, opened for freight, passenger and telegraph business.

Effective February 1st, merit and de-merit system of discipline was adopted. Under this method of discipline, a more rigid compliance with the rules and regulations, which are made for the protection of the lives of the public and employees, as well as for the protection of the Commission's property, is obtained. Monthly educational bulletin is issued, showing cause, extent of discipline, or action and extent of reward assessed respective employees.

Safety First movement was organized March 30th, 1914. The purposes of the Safety Organization are:

(*a*) The correction of unsafe conditions and practices before an injury has resulted.

(*b*) The investigation of accidents which may occur with a view to discovering the causes thereof, and applying corrective measures, where possible, to prevent a recurrence.

The results so far, have been very encouraging, due to the fact that every official and employee takes a personal interest in this movement.

On May 23rd, Iroquois Falls station (works of the Abitibi Power and Paper Company, Limited) was opened for handling of freight, passenger and telegraph business.

Effective June 27th, the electric train staff system was adopted, in connection with operation of trains between North Bay Junction and North Bay C. P. R. Depot. This method of handling trains has proven successful, and avoids detention between terminals.

On August 3rd, new all-steel passenger equipment was placed in inter-line service, Trains Nos. 46 and 47, running between Toronto and Cochrane.

Necessary time-table changes have been made to meet winter and summer traffic requirements. Time-table No. 28, made effective January 18th, 1914, and time-table No. 29, effective June 28th, 1914. Current time-table shows trains Nos. 1 and 2, daily, between North Bay and Cochrane. These trains are equipped with standard C. P. R. sleepers and inter-line service, via C. P. Railway to Montreal. Trains Nos. 46 and 47, daily, between North Bay and Cochrane, with inter-line service, via G. T. Railway, to Toronto. These trains are equipped with Pullman cars between North Bay and Cochrane, and parlor-café cars between North Bay and Englehart. Trains Nos. 50, 51, 52, 53, 54 and 55, daily, between Timmins and Porquis Junction, connecting with main line trains. Trains Nos. 30, 31, 32, 33 and 34, daily, except Sunday, between Iroquois Falls and Porquis Junction, connecting with main line trains. Trains Nos. 60 and 61, daily, except Sunday, between Elk Lake and Earlton Junction, making connections with Trains Nos. 47 and 2 at Earlton Junction. Trains Nos. 62 and 63, Wednesdays

only, between Elk Lake and Earlton Junction, connecting with Trains Nos. 1 and 46. Train No. 4, daily, except Saturday and Sunday, Englehart to Cobalt. Train No. 6, Saturday only, Englehart to Cobalt. Trains Nos. 23, 24, 25 and 26, daily except Sunday, between Englehart and Charlton, connecting with all main line trains.

Every attention is given to cleanliness of cars and stations.

Following derailments and accidents occurred.

1913.

November 3rd, while Extra 118 running through Kilburn, tender of engine 118, and cars G. T. R. 19783, B. & S. 10976, C. P. R. 83816, and B. R. & P. 3414, derailed. Cause, unknown. Estimate of damage to engine, $175, cars, $76.25. Damage to track material and labour repairing, $117.02.

November 15th, while Extra 105 south, switching coaches into Lake Shore track, Cobalt, brakeman J. S. Miller, while attempting to make coupling between coaches and cars of coal standing on siding, was squeezed across abdomen. Taken to Mines Hospital, Cobalt, and later to his home, North Bay. Resumed duty Jan. 28th, 1914.

November 26th, North Bay Junction. While yard crew switching coaches off Train No. 2, coaches ran down, fouling second-class coach No. 42, first-class coach No. 113, and baggage car No. 7, damaging same to extent of $400. Brakeman responsible dismissed.

November 26th, Porquis Junction. Extra 132, when pulling out of yard, struck and alleged killed pig. Owner, Joseph Johnson, Porquis Junction.

December 5th, when Train No. 1 approaching Mulock Yard, an Italian, named Nicolo Giannotti attempted to detrain before train stopped. Seriously injured. Taken to North Bay Hospital on Train No. 2.

December 20th, North Bay Junction, while G. T. R. engine 1287 pulling into yard, struck T. & N. O. car 60016, which was standing foul, damaging same to extent of $20. Damage to engine 1287, $100. Yardman responsible disciplined.

December 21st, Extra 124 south, while passing M.P. 149½, alleged struck Geo. Stultz, who was riding on right-of-way on toboggan, seriously injuring him. Taken to Lady Minto Hospital, New Liskeard, succumbed to injuries, 8.45 p.m. same date.

1914.

January 14th, Yard Engine No. 153, while making drop of two cars into Davis Coal Siding, Cobalt, ran over end of track. Damage to engine, slight. Damage to track and labour repairing, $51.80. Yardmen responsible disciplined.

January 14th, while Extra 111, south, passing M.P. 122, trailing wheel and front end of truck, car C. P. R. No. 76196 derailed, damaging track to extent of $97.84.

January 21st, while yard crew switching in North Bay Junction yard, Engine No. 152, while moving through east yard, collided with cars standing on track No. 20, killing Switchman T. L. Smith. Parties responsible dismissed.

February 9th, Englehart yard, Plough Extra 125 derailed. Cause, switch not properly closed. Responsible party disciplined.

February 28th, North Bay freight shed, while Trucker William Turner jumping from car to ground, caught foot on piece of iron lying in car, tripped and fell, injuring shoulder slightly.

March 9th, Train No. 47 derailed, M.P. 96½. Seven passengers alleged slightly injured. Damage to equipment, $2,875. Cause tender derailment, combination of excessive speed and defective track.

March 14th, while turning empty coaches on wye at North Bay Junction, Engine 136, in charge of hostler, backed into baggage car, damaging same to extent of $100. Hostler disciplined.

March 16th, Train No. 1, passing eight poles south, M.P. 61, first-class coach No. 107 derailed. No one injured. Cause, loose wheel.

March 17th, Tomiko, while Extra 121 switching cars into siding, Brakeman C. D. Kerr got caught between cars, bruising left hip badly. Resumed work April 6th.

March 17th, North Bay Junction, while yard crew switching in yard, Brakeman Wm. Simpkins was slightly squeezed between cars. Injuries very slight. Resumed duty, March 18th.

March 17th, Train No. 85 struck and alleged killed pig, M.P. 113. Owner, W. Thompson, Earlton.

March 19th, New Liskeard, while coupling cars on Extra 123, Brakeman H. F. Wagner had left arm and hand slightly bruised.

March 21st, North Bay freight shed. While Nicholas Roumanis, Stower, stowing iron frames, jammed right hand, bruising same. Resumed duty March 25th.

March 31st, North Bay freight shed. Checker Albert Rogers had finger on right hand crushed while assisting to load heavy case of dry goods. Resumed duty, April 3rd.

March 31st, while yard crew switching, Cobalt Yard, alleged struck and fatally injured Sectionman Thomas Quigge. Removed to Mines Hospital, Cobalt —succumbed to injuries same date.

April 4th, M.P. 3, Charlton sub-division, right injector pipe blew off collar of steam pipe, engine 125, scalding Brakeman A. McDonald's hand, Fireman C. Vreeland's face, and Engineer A. Newman's arm and wrist.

April 15th, No. 47 struck pig at Jocko, killing same. Owner, Wm. Downie, Jocko.

April 17th, M.P. 115, Train No. 47 struck and seriously injured Trackman P. Bevlague. Taken to New Liskeard Hospital. Resumed duty, May 4th.

April 25th, M.P. 8, Porcupine Branch, Extra 131 struck and killed pig. Owner, H. Beattie, Porquis Junction.

April 25th, South Porcupine. While switching cars from Extra 131, derailed cars G. T. R. 56240 and 9272. Cause, brakeman threw switch before cars had passed over. Responsible party disciplined.

May 2nd, repair track, North Bay Junction. Frederick Woodward, loader, sprained back while transhipping lumber. Resumed duty May 5th.

May 13th, Train No. 47 alleged struck and killed heifer at M.P. 2½. Owner, G. Perry, Trout Mills.

May 15th, while Trucker John Jonnston, working in North Bay Junction freight shed, fell and struck heel of left foot. Resumed duty May 19th.

May 15th, Extra 140 struck and killed cow, M.P. 2½. Owner, R. Docsee, Trout Mills.

May 23rd, Extra 138 south, while passing north switch, Feronia, cars G. T. 104875, 285169, 65186 and 12547 and 51186 derailed. Damage, $178.50. Damage to track material and labour repairing, $209.22. Cause, leading truck, G. T. 51186 derailed account friction bound.

May 27th, T. & N. O. car 80059 and G. T. N. 16142 on Train No. 83 derailed at Owaissa. Damage to car 80059, $75, car G. T. 16142, $193. Cause, brake beam on car G. T. 16142 dropping. Estimate of damage to track material and labour repairing, $125.21.

May 28th, Train No. 2 alleged struck and killed horse M.P. 204¼. Owner, unknown.

May 29th, while Trucker A. H. Doughty working at North Bay freight shed, alleged strained his back. Resumed duty June 4th.

May 29th, while Olaf Veshinskin, labourer, cutting ice, North Bay Junction ice-house, alleged cut his foot. Resumed duty June 2nd.

June 3rd, Train No. 1 struck and killed pig, Cobalt Yard. Owners, McKinley-Darragh Mining Co., Cobalt.

June 11th, Train No. 60 alleged struck and killed cow at M.P. 2, Elk Lake Branch. Owner, A. Maillie.

June 12th, Trucker William Colbon while lifting barrel in North Bay freight shed, alleged cut thumb and index finger. Resumed duty, June 16th.

June 16th, Train No. 33, Kerr Lake Sub-division derailed, M.P. 3½. Cause, leading tender truck mounted rail on curve. Damage to equipment, $112.37.

June 29th, Train No. 2 alleged struck and killed bull, M.P. 71. Owner, J. Perron, Temagami.

July 6th, Train No. 60 alleged struck and killed bull at M.P. 18½, Elk Lake Sub-division. Owners, Jamieson Meat Company, Elk Lake.

July 24th, Ernest Blais, passenger on No. 47, North Bay to Cochrane, attempted to board train at Matheson, while same in motion, slipped, alleged crushing left foot at ankle.

August 13th, Train No. 55, Porcupine Sub-division, alleged struck horse at M.P. 14¾. Owner, M. Hurtubise, Connaught.

August 28th, Stower Wm. Brigginshaw, while assisting to unload wide sheets of extended metal in North Bay freight shed slipped, cutting wrist of left hand. Resumed duty, August 30th.

September 2nd, North Bay Junction yard, while yard crew switching coaches from Train No. 2, T. & N. O. baggage car No. 21 and coach No. 24 damaged to extent of $25.60.

September 8th, Riddle, T. & N. O. car 60017 on Extra 123 south derailed. Cause, broken flange. Damage to track material and labour repairing, $222.23.

October 10th, Train No. 54, Porcupine Sub-division alleged struck and killed two pigs at M.P. 24. Owner, Mr. Raymond, Keys.

October 13th, Extra 116 south alleged struck and injured calf at M.P. 119¼. Owner, J. Parker, Uno Park.

October 13th, Train No. 46 alleged struck cow at M.P. 111½. Owner, Willows Salmon.

October 15th, Extra 122 struck hand car at M.P. 20, slightly damaging same. No damage to engine.

October 19th, North Bay Junction freight shed. While Stower George Griffiths stowing barrel of apples, a radiator fell on his foot alleged bruising toes. Resumed duty, October 22nd, 1914.

"Zeta"—A typical Postoffice in the Northland; two mails per week. Geo. Gregory, Postmaster.

During the potato harvest all the family help.

October 28th, Train No. 1 alleged struck and killed cow at Englehart, Ont. Owner, Alex. Clarke, Englehart.

October 29th, North Bay Junction freight shed. Loader Jos. T. Cox, while assisting to move furnace casting, same is alleged to have fallen on right foot, bruising same. Resumed duty, November 9th, 1914.

Herewith reports Dr. McMurchy, North Bay; Dr. Fisher, New Liskeard; Dr. Lowery, Englehart; Dr. McKee, Elk Lake: and Dr. Moore, Schumacher, covering medical attendance.

REPORT OF DR. A. McMURCHY

I take pleasure in complimenting you again on the freedom from accidents, occurring to employees and to the travelling public, of a serious nature during the past year.

I have to report the following cases of accidental injury which have come under my care and am pleased to say that there have been no fatalities among them.

In addition to a number of minor injuries requiring little attention beyond a few dressings, there are the cases of one man having been severely burned about the face and arm. One man had face severely injured by a blow from a sledge, fracturing the molar bone and zygomatic arch. One man had eye injured by being struck with a hot bolt. One had hand penetrated with piece of steel. One passenger had leg crushed at Cochrane requiring amputation. Two passengers received minor injuries in an accident to Train No. 47, near Cobalt.

REPORT OF DR. A. J. FISHER

I herewith beg to submit my annual medical report for the year ending October 31st, 1914. I am pleased to be able to report no serious nor fatal accidents on my division, and no deaths from illness:

Month.	Hospital and Town Visits.	Office Consultations, Dressings and Medicine.	Visits Out.	Surgical Operations.
November, 1913	20	15	2	.....
December	10	34	3	1
January, 1914	15	16	4	2
February	8	15	3	.....
March	9	16	8	.....
April	20	9	2	1
May	16	19	2	1
June	17	17	2	1
July	27	9	3	.....
August	22	26	4	.....
September	10	17	3	.....
October	18	8	2	1
Total	192	201	38	7

REPORT OF DR. R. C. LOWERY.

I beg to submit herewith the annual medical report for this district:

(*a*)—*Surgical Cases*:

Burns	5
Severe head injuries with dislocation of knee	1
Lacerated head injuries	2
Frozen hands	1
Perforated injury to hand, due to revolver bullet	1
Amputation of fingers	1
Minor injuries such as sprained ankle, etc.	10

(*b*)—*Medical Cases*:

Tonsilitis	10
Appendicitis	2
Anæmia	2
Heart disease	3
Tuberculosis	1
Eczema	1
Measles	3
Rheumatism	3

There were also a number of minor ailments, such as Bronchitis, Indigestion, Neuralgia, etc., which were treated by me during the past year.

REPORT OF DR. J. G. McKEE.

Annual medical report, year ending October 31st, 1914, Elk Lake Branch:

Accident	Some few minor accidents; none of importance.
Visits to Earlton	6
Visits to Elk pit	2
Visits to patients in Elk Lake	42
Calls in office	48
Medicine dispensed, about $30.00 worth.	

REPORT OF DR. H. H. MOORE.

I beg to submit the following report for year ending October 31st, 1914, of cases of accident and sickness among the employees of the T. & N. O. Ry. on that part of the line between Iroquois Falls and Timmins:

Cases of Accident:

Nature of Injury.	*No. Injured*
Nail in foot	1
Foreign body in eye	1
Strained back	1
Cuts on face	1
Lacerations on scalp	1
Bruised thigh	1
Cut thumb	1
Infected leg	1
Cut leg	1
Cut arm	1

Cases of Sickness:

There was one case each of the following diseases: Bronchitis, Tonsilitis, Myocarditis, Grippe, Measles, Boils and Indigestion.

Among the members of the employees' families, there were Mumps, Bright's Disease, Epilepsy, and several Colds.

I am glad to report there were no epidemics of sickness and no serious accidents, and that all made good recoveries.

Respectfully submitted,

W. A. GRIFFIN,
Supt of Traffic.

GENERAL FREIGHT AND PASSENGER DEPARTMENT

Year Ending October 31st, 1914.

Freight tonnage and gross freight receipts show the following comparison for the fiscal year ending October 31st, 1914, as against 1913:

Tonnage, 1914	742,366	Freight Revenue	$952,090 35
Tonnage, 1913	674,942	Freight Revenue	906,476 16
Increase	67,424		$45,614 19

It is, therefore, seen that while our tonnage increased 67,424 tons over the preceding year our revenue increased only $45,614.19. This is explained by the low basis of rates which are in effect on this railway.

Pulpwood, lumber and other forest products, coal, coke, stone, sand, etc., constitute this year almost 70 per cent. of the entire tonnage handled.

On all of this traffic the earnings are very much less than the actual operating cost of hauling the freight, and on some of it, particularly on pulpwood, the earnings are less than half the actual operating cost.

Realizing the importance of the pulpwood traffic to the settlers along the T. & N. O. Ry. the Commission has established rates, our revenue from which aggregate one-half cent per ton per mile.

The following shows a comparison of the rates on pulpwood in effect on this railway as compared with those on other railways in eastern Canada:

One of the Summer Cottages on Lake Sesekinika. This is rapidly becoming a favorite summer resort.

Prospector Crossing a Nameless Lake in Willett Township.

Mileage Groups—Temiskaming and Northern Ontario Pulpwood Tariffs.

Mileage Groups.	T. & N.O. Rate per 100 lbs.	C.P.R. Rate per 100 lbs.	G.T.R. Rate per 100 lbs.	C.N.R. (Lines East) per 100 lbs.	A.C. & H.B. Ry. Rate per 100 lbs.	Temiscouata Ry. Rate per 100 lbs.	I.R. of N.B. Rate per 100 lbs.	Q.C.R. Rate per 100 lbs.
	c.	c.	c.	c.	c.	c.	c.	c.
Up to 13.52 miles	2	2¼	2¼	2¼	2	3	3	2½
Over 13.52 and not over 27.31 miles.....	2¼	2¾	2¾	2¾	2	3½	3½	3⅝
" 27.31 " " " 33.93 "	2½	3	3	3	3	3½	4	3⅝
" 33.93 " " " 41.59 "	2¾	3¼	3¼	3¼	3	4	4½	3⅝
" 41.59 " " " 55.54 "	3	3½	3½	3½	3	4½	4½	4
" 55.54 " " " 138.48 "	3¼	(3½ to 5½)	(3½ to 5½)	(3½ to 5½)	(3 to 5½)	4½	(4½ to 6½)	(4 to 5⅝)
" 138.48 " " " 143.73 "	3½	5½	5½	5½	5½	.....	.....	.....
" 143.73 " " " 146.0 "	3¾	5½	5½	5½	5½	.....	.....	.....
" 146.0 " " " 159.74 "	4	6	6	6	6	.....	.....	.....
" 159.74 " " " 168.16 "	4¼	6	6	6	6	.....	.....	.....
" 168.16 " " " 182.48 "	4½	6½	6½	6½	6½	.....	.....	.....
" 182.48 " " " 195.01 "	4¾	6½	6½	6½	6½	.....	.....	.....
" 195.01 " " " 224.87 "	5	7	7	7	7	.....	.....	.....
" 224.87 " " " 241.87 "	5½	7½	7½	7½	7½	.....	.....	.....
" 241.87 " " " 253.1 "	6	8	8	8	8	.....	.....	.....

Temiscouata Railway. Mileage, 113.13.
International Railway of New Brunswick. Mileage, 112.
Quebec Central Railway. Mileage, 143.

Pulpwood Rates:

From the foregoing it will be seen that our comparatively small tonnage of high grade traffic has an under burden placed on it of maintaining our average earnings at a point to cover cost of operating, and this is further emphasized when it is stated that whereas other railways in Eastern Canada apply what is known as the standard mileage tariff to local traffic, the T. & N. O. Ry. has adopted what is known as Schedule A, being a basis approximately 25 per cent. less than standard mileage.

As an illustration:

T. & N. O. Rates:

100 lbs. 1st class freight shipped 100 miles costs 30c.
100 lbs. 1st class freight shipped 200 miles costs 38c.

On Other Railways:

100 lbs. 1st class freight shipped 100 miles costs 36c.
100 lbs. 1st class freight shipped 200 miles costs 46c.

In August The Abitibi Power and Paper Co., located at Iroquois Falls, started operations and have been shipping their pulp to various points in Canada and the United States.

As their chief competition is from pulp mills in the east it was necessary for us to establish rates as near the basis enjoyed by these eastern mills as possible, and in order to do this the T. & N. O. was compelled to accept 5 cents per 100 lbs. traffic, Iroquois Falls to North Bay, which gives us only .43c. per ton per mile on this traffic.

They are now engaged in the construction of a large paper mill which is expected to be in operation by the spring of 1915, and will give us a considerable increase in tonnage.

The total amount paid for loss and damage claims for the year was:	$4,067.99
Insurance and other credits	2,237.91
Balance chargeable to loss and damage	$1,830.08

This is equal to .187 of 1 per cent. of gross freight revenue while the average amount paid by Canadian railways for loss and damaged freight during the past three years is 1 per cent. of gross freight revenue.

Passenger traffic compares as follows as against 1913:

Passengers carried, 1914	535,869	Revenue	$544,820 08
Passengers carried, 1913	508,055	Revenue	576,049 37
Increase	27,814	Decrease	$31,229 29

That there is an increase in the number of passengers, while our passenger revenue shows a decrease, is due to the fact that in 1913 our average haul per passenger was 48.31 miles, while in 1914 the average haul was only 41.93 miles.

Temiskaming and Northern Ontario Railway.

GENERAL FREIGHT AND PASSENGER DEPARTMENT

Statement of all Baggage, Corpses and Bicycles Handled during the Fiscal Year Ending October 31st, 1914.

Station	Baggage		Corpses		Bicycles		Total 1914	Total 1913	Increase	Decrease
	Forwarded	Received	Forwarded	Received	Forwarded	Received				
North Bay	19,325	18,251	1	28	.....	.....	37,605	43,792	.....	6,189
North Bay Junction	720	5,472	.....	.....	.....	.....	6,192	8,616	.....	2,424
Widdifield	316	235	.....	.....	.....	.....	551	894	.....	343
Tomiko	306	459	.....	.....	.....	.....	765	1,557	.....	792
Diver	407	352	.....	.....	.....	.....	759	999	.....	240
Temagami	2,398	2,780	.....	.....	.....	.....	5,178	5,768	.....	590
Latchford	846	863	1	.....	.....	.....	1,710	2,352	.....	642
Gillies Depot	511	407	.....	.....	.....	.....	918	1,580	.....	662
Cobalt	11,674	10,492	14	4	37	26	22,247	23,265	.....	1,018
North Cobalt	971	1,010	.....	.....	.....	.....	1,981	2,109	.....	128
Haileybury	10,007	8,862	15	8	5	8	18,905	22,353	.....	3,448
New Liskeard	5,813	5,324	11	2	31	13	11,194	12,327	.....	1,133
Uno Park	379	465	1	.....	.....	.....	845	774	71	.....
Thornloe	410	503	.....	.....	1	2	916	1,215	.....	299
Earlton Junction	1,594	1,394	3	1	1	1	2,994	4,650	.....	1,656
Elk Lake	1,555	1,756	1	.....	1	1	3,314	3,091	223	.....
Heaslip	299	509	.....	.....	.....	.....	808	1,368	.....	560
Englehart	4,913	4,082	1	6	5	4	9,011	10,062	.....	1,051
Charlton	967	1,217	2	.....	.....	.....	2,186	2,170	16	.....
Dane	720	731	1	.....	1	.....	1,453	2,571	.....	1,118
Swastika	1,729	2,060	1	.....	.....	1	3,791	5,701	.....	1,910
Matheson	1,489	1,957	.....	.....	.....	.....	3,446	3,829	.....	383
Porquis Junction	2,015	2,799	.....	.....	1	1	4,816	3,333	1,483	.....
Iroquois Falls	835	1,085	.....	.....	.....	.....	1,920	.....	1,920	.....
Porcupine	930	982	.....	.....	4	.....	1,916	3,202	.....	1,286
South Porcupine	3,187	3,482	4	.....	1	1	6,675	7,883	.....	1,208
Schumacher	768	765	.....	.....	.....	.....	1,533	2,016	.....	483
Timmins	2,886	3,669	.....	.....	.....	.....	6,555	5,729	826	.....
Cochrane	6,711	7,564	6	1	12	12	14,306	17,877	.....	3,571
Total Year, 1913-1914	84,681	89,527	62	50	100	70	174,490	201,085	4,539	31,134
" " 1912-1913	100,762	100,125	62	46	42	48	201,085	.....	.....	.....
Increase	.....	.....	.....	4	58	22	.....	.....	.....	.....
Decrease	16,081	10,598	.....	.....	.....	.....	26,595	.....	.....	26,595

Statement of Baggage Claims

RECEIVED, PAID, UNDER INVESTIGATION, Etc.

Number Baggage Claims 16. Amount $820 63.

5 Claims Vouchered (Amount claimed)	$417 60	Vouchered for $216 00
3 Claims Declined (Amount claimed)	94 28	
4 Claims Referred to Connections	227 25	T. & N. O. not interested
2 Claims Withdrawn (Amount claimed)	66 50	
2 Claims under Investigation (Amount claimed)	15 00	
Total	$820 63	

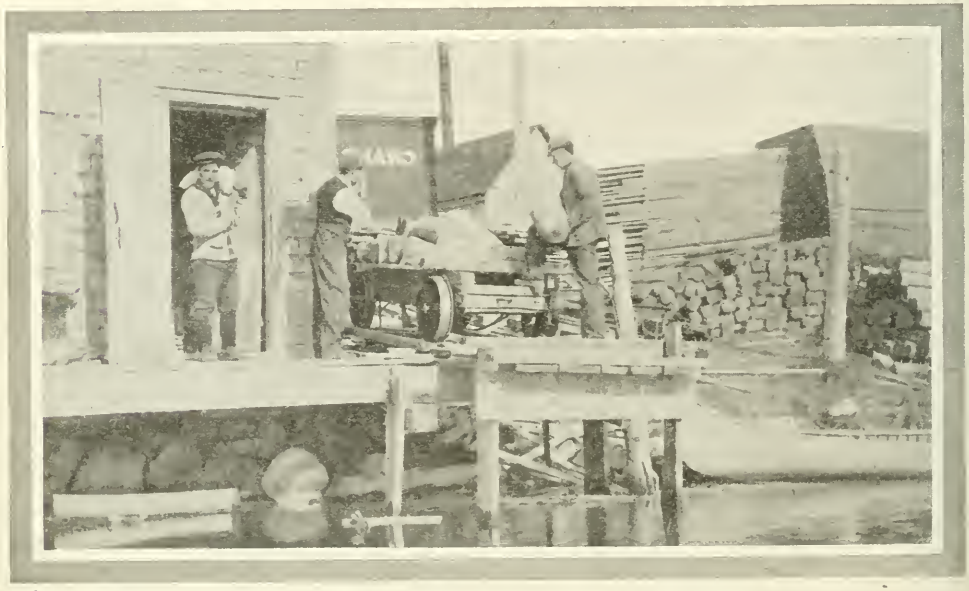
Under Investigation

Miss Alice Bakins (Claim)	$12 00	Loss articles from suit case
W. E. Clyde Todd (Claim)	3 00	Damage to suit case
	$15 00	

Statement of Credits, Baggage, 1913-14

Charged connections	$16 92	Kinsinger claim
" "	75 56	Ringwald claim
" "	35 17	Gillies Bros. claim
Total credit	$127 65	
Total debit	216 00	
Net debit	$88 35	

Loading Lumber on T. & N. O. at Charlton for Smith, Fassett & Co., Tonawanda, N.Y.



Shipping Ore, Charlton. Each bag contains about $90.00 worth of the metal.

OFFICE OF THE COMMISSIONER

Year Ending October 31st, 1914

GEO. W. LEE, COMMISSIONER AND GENERAL AGENT.

1. The year just closed has been a banner year for Northern Ontario and the lands adjacent to the Temiskaming and Northern Ontario Railway.

2. During the year the Crown Land Offices disposed of the following lands:

Agency.	No. of Farms.	No. of Acres
Haileybury	23	3,370
New Liskeard	98	14,820
Englehart	133	21,280
Matheson	251	40,160
Cochrane	129	19,503
Total	634	99,133

3. A decrease from 1913, which can be accountable to the war, as very little immigration of any kind has taken place since July of this year.

4. The year 1914 has been one of large importance to New Ontario:

(*a*) Will use the word "New" because the word "North" is not suitable to the lands served by the Temiskaming and Northern Ontario Railway.

(*b*) The exhibitions at New Liskeard, Englehart, Charlton, Matheson and Cochrane were nothing short of wonderful, and were real *exhibits* of what can be grown in the "Garden of Ontario," and which, will be termed "Greater Ontario."

(*c*) The excursion to Monteith Farm was attended by about 1,500 people, all were astonished with the improvements during the last year.

5. The development at Iroquois Falls of a pulp and paper mill almost completed, everyone should visit to get an idea of the size and capabilities of the mill. The paper mill is nearing completion. These works are of untold value to the district and the settlers.

6. During the year a great many roads have been undertaken and completed with credit to those in charge. For instance, one can now use a motor from Haileybury and New Liskeard north for fifty (50) miles, through the rich agricultural townships and it is worth while to take the trip.

7. All complaints, petitions and reasonable requests, that have come to us during the year, have been thoroughly investigated and acted upon with best judgment. Have no hesitation in stating that in a great many cases we have been of assistance to the new comers. We have endeavored as far as possible to make their new home pleasant believing that if well taken care of, and satisfied, that word would go out to their friends, et al.

8. Recently, three new townships have been thrown open for settlement—Newmarket, Evelyn and Smythe, near Elk Lake. These are three more good townships and without doubt will soon be taken up.

9. Speaking generally, there is great evidence of prosperity on every hand, so much so, that one can readily note while travelling on the cars.

10. Large clearings and improvements have been made in the Townships of Bucke, Harris, Dymond, Hudson, Lundy, Cane, Hemwood, Kerns, Harley, Casey, Beauchamp, Armstrong, Hilliard, Brethour, Ingram, Evanturel, Dack, Robillard, Savard, Chamberlain, Marter, Marquis and Pacaud, which can easily be seen. Anyone who came through last year, cannot but notice the wonderful advancement in these townships.

11. From Englehart north the country is new—the improvements are just as good, but probably not so much, but the townships along the Temiskaming and Northern Ontario Railway, viz.: Boston, Playfair, Bowman, Carr, Currie, Taylor, Walker, Clergue, Calvert, Dundonald, German, Matheson, Hoyle, Whitney, Godfrey, Lamarche, Glackmeyer, Clute, Brower and Calder are being well opened up and settled by good people, who are all that can be desired. The progress they have made is remarkable—more than the previous three years.

12. One evidence of the developments going on in the north is the amount of fall ploughing that has been done this year—ten times that of any previous year—all along the line, from Haileybury north, hundreds of acres of land are in readiness for the seed in the spring. To make special mention of Mr. Stewart's farm, near Earlton—290 acres ploughed and 52 acres in Fall wheat. There was good ploughing weather up to November 7th, and most glorious weather for clearing up and ploughing land—the people took the best advantage of it. If next season is a favorable one then New Ontario will be in the front as far as agriculture is concerned, as well as with live stock showing large increase.

13. Lumbering during the seasons 1913 and 1914 was all that could be desired, supplying plenty of work for the settlers, who desired.

14. The pulpwood business has been flourishing and this year promises to be a "banner year." Every settler in New Ontario is working at his clearing—taking out his pulpwood, which gives ready cash.

15. Re unemployed: This question has been given a great deal of attention. In the lands served by railway, there are none—there is work for all who want it, and I know of no hardship in New Ontario, account of unemployment. If a man can farm all right—if not, he can work in mine, roads, railway and again there is the lumber camp. There is no reason for any person, who is willing to work, being out of work—if the settler wants good, hard work.

All along the line of the Temiskaming and Northern Ontario Railway, there are evidences of prosperity on every hand—and no more contented or satisfied people are in the world to-day. The country is composed of the best people in Canada—intelligent, hard-working, optimistic and the future of New Ontario is assured—all faith in the lands have been amply justified.

Acres of Ties, Telegraph Poles and Pulpwood at Charlton, T. & N. O. Ry. Settlers make good wages at this work while clearing their land.

Cutting Poplar Pulp by Power on Long Lake. This settler (Mr. Beaudry), only one year in the country, has built a good house, stable, and sold over $300 worth of pulp.

Preliminary Report on the Mining Industry in that part of Northern Ontario served by the Temiskaming and Northern Ontario Railway, Calendar year 1914

By ARTHUR A. COLE, Mining Engineer.

The year 1914 is marked by many abnormal conditions and these are seen in mining as well as in other industries.

In the first half of the year the gold industry showed steady progress at both Porcupine and Kirkland Lake. The silver output, however, at Cobalt continued to fall off owing primarily to the natural decline in production, but this was accentuated by a gradual fall in the price of silver, the average price for July being 54.678 cents, or 5 cents below the average price for 1913.

On the outbreak of war it looked as if both gold and silver output would, as a direct consequence, be much curtailed. This eventuality has happily been avoided. The commodities required for the treatment of ores, which were ordinarily obtained from Europe, and of which the supplies were threatened, were cyanide, zinc dust and pebbles.

It was feared that those mines using cyanide might have to curtail their output, because much of the world's production of cyanide was of German manufacture, the buying of which is now contrary to the laws of Canada. As a matter of fact, it was found on enquiry that all the mines of this district, with two exceptions, were using cyanide manufactured in Great Britain by the Cassel Cyanide Company, Limited of Glasgow, Scotland.

The British Government realizing the importance of the production of gold and silver, particularly at the present time, asked the Cassel Company to sell no cyanide outside the British Empire until the gold and silver mines within the Empire had been supplied.

Following this programme, therefore, the Cassel Cyanide Company sent a special representative into Northern Ontario to confer with the mine managements. The company is making large additions to its present plant so as to be able to carry its increased production load, but it will be a number of months before these can be completed.

Owing to increased cost of raw materials due directly or indirectly to the war, the price of cyanide has risen to 18 cents per pound, which is a rise of 3 cents above the price immediately before the war.

The offer that the Cassel Cyanide Company is now making to the mines is to keep them supplied with cyanide on the following terms, 18 cents per pound to June, 1915, 16 cents per pound to the end of 1916, and 15 cents or the normal price during 1917, providing that the mines on their part will give the company an exclusive cyanide contract for two years giving an estimate now of what their requirements are likely to be during that time.

The mining companies now using cyanide in the district are:

Cobalt:

Buffalo.
Dominion Reduction.
Nipissing.
O'Brien.

Porcupine:
Dome.
Hollinger.
McIntyre.
Porcupine Crown.
Vipond.

To these will likely be added in 1915:

Cobalt:
Cobalt Reduction.

Kirkland Lake:
Tough Oakes.

Porcupine:
Miracle.
Schumacher.

The normal monthly consumption of cyanide in the district is about 50 tons in Cobalt, and 20 tons in Porcupine. This may be expected to gradually increase till the consumption a year from now should run over 100 tons per month.

Since the outbreak of war the zinc dust situation has also been creating some uneasiness. Before August last, the main supplies came from Belgium and Silesia, but these being cut off, the mines now have to look to the United States.

The Belgian price was 6¾ cents, but now the price is 11 cents, F.O.B. Cobalt. the method of preparation adopted in the United States is different from that of the Belgian furnaces, the American product carrying a slightly higher percentage of oxide and more lead, and, therefore, having a proportionately smaller precipitating power.

In the case of pebbles for use in pebble mills the supply formerly came from Denmark and France. Shipments from these points are now cut off, but an adequate supply can be obtained from Newfoundland and Sweden. A consignment of 1,200 tons of pebbles was recently brought in from Newfoundland. At the close of the year the price per ton of pebbles is $21.17 at Cobalt and $21.69 at Porcupine, practically the same price as before the war. The annual consumption of pebbles is about 600 tons for Cobalt and 1,400 tons for Porcupine.

Gold.

The statistics of Ontario's gold and silver production for the first nine months of the calendar year, issued by the Ontario Bureau of Mines, indicate faithfully the present status of these industries. The gold production which is almost entirely from Porcupine and Kirkland Lake is as follows:

Gold Production in Ontario During Nine Months Ending September 30th, 1914.

Period 1914	Quantity Oz.	Value.
1st Quarter	6,032	$1,202,502
2nd "	38,237	808,567
3rd "	97,665	1,931,779
Total for 9 months	196,934	$3,942,848

The effect of the war on the gold camps has been to stimulate production and the tonnage of ore crushed is noticeably increasing, so that the figures for the fourth quarter of the year will likely bring the total production for the year close to $6,000,000.

The mines producing gold are:

Porcupine:

- Dome.
- Dome Lake.
- Hollinger.
- McIntyre.
- Porcupine Crown.
- Rea.
- Vipond.

Kirkland Lake:

- Tough Oakes.

Promising prospects were found during the year near Sesekinika Station, mileage 176, in the Township of Maisonville. The most noteworthy were the Smith and Labine, the Sullivan and the Malouf claims. The veins show patches rich in gold associated with certain tellurides and although very persistent are narrow. Little more than assessment work has been done on these claims so that the value of the district has yet to be proven.

Silver.

The silver production of Ontario, which practically represents the output of the Cobalt district, shows a decline during the third quarter of the year, and is likely to show a still further reduction in the fourth quarter. This is due to the extremely low price of silver, caused by the cessation of shipments from London to the eastern markets of India and China.

The official returns are as follows:

Silver Production in Ontario During Nine Months Ending September 30th, 1914.

Period 1914.	Quantity Oz.	Value.
1st Quarter	6,519,860	$3,549,556
2nd "	6,859,184	3,503,862
3rd "	6,068,974	3,028,811
Total for 9 months	19,448,018	$10,082,229

The price of silver in London and New York during the year has been as follows:

Month.	New York,	London,
January	57.572	26.553
February	57.506	26.573
March	58.067	26.788
April	58.519	26.958
May	58.175	26.704
June	56.471	25.948
July	54.678	25.219
August	54.344	25.979
September	53.290	24.260
October	50.654	23.199
November	49.082	22.703

New York quotations cents per ounce troy, fine silver; London, pence per ounce, sterling silver, 0.925 fine.

During the dislocation of business conditions on the declaration of war several of the mines ceased operations, but now all of these have restarted. Certain curtailments have naturally been effected, but otherwise the situation is almost normal. A few cents rise in the price of silver would quickly bring out much hoarded bullion and high grade ore and stimulate activity in the district. The Cobalt district continues to produce silver at the rate of about 2½ tons of pure silver for each working day.

Nickel.

Nickel ore shipments from the Alexo mine continued regularly till August when a close down took place until the nickel situation readjusted itself to new conditions. Shipments were resumed in November and are now continuing regularly. The ore is sold outright to the Mond Nickel Company and is treated with their own ores in their smelter at Coniston, Ontario. A statement of shipments for eleven months of the year is given herewith:

Nickel Shipments over the T. & N. O. Ry., from January 1st to November 30th, 1914.

Month.	Tons (2,000 lbs.)
January	744.00
February	622.45
March	928.00
April	582.90
May	892.25
June	961.60
July	653.75
August	564.10
September	....
October	....
November	311.30
	6,260.35

Copper.

In January a trial shipment of 66 tons of copper ore was made to an American smelter by the Dane Mining Co., from its property near Dane, mileage 160. As developments did not prove satisfactory operations were discontinued.

High Falls, Blanche River, Near Englehart.

FINANCIAL STATEMENTS

GENERAL BALANCE SHEET.

ASSETS.

Property Owned :—		
Cost of Road to Oct. 31, '13	$17,373,118 75	
Cost of Road to Oct. 31, '14	373,934 90	
		$17,747,053 65
Cost of Equipment to Oct. 31, '13	2,003,622 49	
Cost of Equipment to Oct. 31, '14	223,938 78	
		2,227,561 27
Nipissing Central Railway		464,677 97
Working Assets :—		
Cash	$262,418 25	
Accounts Collectible	195,148 42	
Agents and Conductors	24,535 48	
Material and Supplies	270,253 32	
Ballast Pit Operations	49,217 74	
		801,573 21
Deferred Debit Items :—		
Paymaster's Advance	$7,000 00	
Treasurer's Advance	50 00	
Insurance Paid in Advance	10,427 37	
Accounts in Suspense	6,563 42	
		24,040 79
Land Agent		72,341 03
		$21,337,247 92

LIABILITIES.

Debit :—		
Provincial Loan Account		$20,246,451 99
Working Liabilities :—		
Accounts Payable, Inc. Pay Rolls	$538,035 82	
Car Mileage and Per Diem Balances	2,976 98	
Foreign Ticket Balances	962 32	
Unclaimed Wages	501 36	
Operating Reserve for Equipment	132,901 85	
Deposit on Contracts	2,775 00	
" " Sidings	2,875 33	
Stores in transit	51 37	
		681,080 03
Free Surplus :—		
Profit and Loss—Balance		409,715 90
		$21,337,247 92

PROFIT AND LOSS.

Paid Treasurer of Ontario	$225,000 00	By Balance, October 31st, 1913	$350,920 22
Balance Carried Forward	409,715 90	" Townsites	44 67
		" Interest	48,527 06
		" Revenue	228,977 23
		" Unclaimed Wages	6,246 72
	$634,715 90		$634,715 90

Comparative Statement, Fiscal Year 1913-1914.

EARNINGS AND EXPENDITURES.

	1913.	1914
Revenue from Transportation:		
1. Freight revenue	$906,476 16	$952,090 35
2. Passenger revenue	576,049 37	544,820 08
3. Excess baggage revenue	7,014 31	6,440 96
4. Parlor and chair car revenue	1,771 30	1,475 75
5. Mail revenue	20,129 85	20,487 57
6. Express revenue	42,170 54	42,946 59
7. Milk revenue (passenger train)	366 74	66 15
8. Other passenger train revenue	.....	.....
9. Switching revenue	6,096 47	7,563 38
10. Special service train revenue	7,153 69	4,777 45
11. Miscellaneous transportation revenue	.....	.....
Total	$1,567,228 43	$1,580,668 28
Revenue from Operation other than Transportation:		
12. Station and train privileges	$3,949 92	$4,283 36
14. Storage—Freight	900 05	1,012 50
15. Storage—Baggage	786 00	631 75
16. Car service—Demurrage	12,766 45	9,654 65
17. Telegraph and Telephone	32,545 73	41,065 68
18. Rent of Buildings and other property	37,409 33	31,274 70
19. Miscellaneous	568 94	2,307 95
Total	$88,926 42	$90,230 59
Total Revenue	$1,656,154 85	$1,670,898 87
Expenditures:		
1. Maintenance of ways and structures	$430,820 04	$408,046 15
2. Maintenance of equipment	242,633 93	284,935 87
3. Traffic expenses	16,857 36	18,872 65
4. Transportation expenses	680,480 08	651,687 20
5. General expenses	106,758 60	105,032 36
Total Operating Expenses	$1,477,550 01	$1,468,574 23
Balance	178,604 84	202,324 64
Other Income:		
Ore royalties	$81,421 20	$55,874 45
Equipment rental	4,953 46	1,904 30
Outside operations	3,671 52	908 64
Total	$268,651 02	$261,012 03
Deductions from Income:		
Hire of equipment	$10,671 24	$16,141 31
Outside operations	2,656 06	15,893 49
Net Results	$255,323 72	$228,977 23

STATEMENT SHOWING AMOUNT EXPENDED ON IROQUOIS FALLS BRANCH,

Year Ended October 31st, 1914.

Engineering	$500 79
Right of way and station grounds	7 70
Grading	12,707 48
Bridges, trestles and culverts	1,674 45
Ties	3,423 72
Rails	879 12
Frogs and switches	971 14
Track fastenings and other materials	1,696 64
Ballast	7 74
Track laying and surfacing	1,255 54
Fencing right of way	2,242 13
Signs and crossings	118 51
Telegraph and telephone lines—Railway	401 80
Telegraph and telephone lines—Commercial	5 38
Shop, engine houses and turntables	850 77
Water stations	194 32
Transportation men and materials	49 94
Station Buildings and fixtures	4,638 80
	$31,625 97

STATEMENT SHOWING AMOUNT EXPENDED ON PORCUPINE BRANCH.

Year Ended October 31st, 1914.

Engineering	$140 70
Right of way and station grounds	382 25
Real estate	*500 00
Grading	*1,609 56
Ties	*359 89
Track fastenings and other materials	7 75
Ballast	*114 00
Shop machinery and tools	*342 00
Insurance	*109 00
	*$2,503 75

*Cr.

STATEMENT SHOWING AMOUNT EXPENDED ON ELK LAKE BRANCH.

Year Ended October 31st, 1914.

Engineering	$225 25
Right of way and station grounds	674 06
Real estate	7 41
Grading	3,456 35
Bridges, trestles and culverts	4,185 64
Rails	34 83
Track fastenings and other materials	579 08
Ballast	73 43
Track laying and surfacing	*15 79
Roadway tools	28 30
Fencing right of way	*957 80
Signs and crossings	484 11
Telegraph and telephone lines—Railway	101 10
Station buildings and fixtures	1,532 23
Shops, Engine houses and turntables	2,521 02
Shop machinery and tools	46 50
Water stations	132 53
Fuel stations	26 61
	$13,134 86

*Cr.

STATEMENT SHOWING AMOUNTS EXPENDED ON ADDITIONS AND BETTERMENTS.

Year Ended October 31st, 1914.

Right of way and station grounds	$3,169 25
Real estate	350 81
Widening cuts and fills	22,712 89
Protection of banks	6,230 61
Bridges, trestles and culverts	84,105 28
Improved frogs and switches	*320 53
Track fastenings and other materials	*10 05
Ballast	4,421 25
Additional main tracks	793 98
Sidings and spur tracks	67,873 88
Terminal yards	3,855 57
Fencing right of way	5,882 77
Improvement of over and under grade crossings	18 09
Telegraph and telephone—Railway	3,085 14
Telegraph and telephone—Commercial	71 50
Station buildings and fixtures	31,506 80
Shops, Engine houses and turntables	652 39
Shop machinery and tools	35 00
Water and fuel stations	3,236 55
Miscellanoeus structures	651 64
Equipment	*31,871 00
Road crossings, special account	1,239 92
Joint terminals, special account	3,617 04
North Bay Ice House, special account	185 88
	$211,459 80

*Cr.

STATEMENT SHOWING AMOUNT EXPENDED ON SUNDRY SURVEYS.

Year Ended October 31st, 1914.

James Bay Exploration.	Engineering	$3,943 74
Gowganda, Sudbury	"	58 17
Elk Lake, Gowganda	"	907 68
Porcupine, Sudbury	"	123 45
Electrification of road	"	1,354 82
Nipissing Junction spur	"	57 52
		$6,445 38

STATEMENT SHOWING AMOUNT EXPENDED ON CONSTRUCTION OF MAIN LINE.

Year Ended October 31st, 1914.

Engineering	$3,020 65
Right of way and station grounds	*11,694 39
Grading	27,504 64
Bridges, trestles and culverts	654 61
Ties	4,848 15
Rails	19,943 62
Frogs and switches	2,875 73
Track fastenings and other materials	2,723 98
Ballast	5,843 11
Track laying and surfacing	5,390 83
Roadway tools	8 64
Crossings and signs	132 28
Interlocking and signal apparatus	983 27

Telegraph and telephone line—Railway	$976 20
Telegraph and telephone line—Commercial	4,650 00
Station buildings and fixtures	15,434 92
Shops, Engine houses, etc.	1,735 37
Water stations	*3,421 75
Fuel stations	29 45
Stationery and printing	34 52
Insurance	227 81
	$81,901 64

*Cr.

SHOWING AMOUNT EXPENDED ON CONSTRUCTION OF MAIN LINE AND ALL BRANCHES.

Year Ended October 31st, 1914.

Engineering	$8,715 15
Right or way and station grounds	*10,630 38
Grading	42,706 05
Bridges, trestles and culverts	6,303 19
Ties	8,010 81
Rails	20,941 59
Frogs and switches	3,894 70
Track fastenings and other materials	4,578 17
Ballast	5,786 25
Track laying and surfacing	7,015 61
Roadway tools	36 85
Fencing right of way	1,284 24
Crossings and signs	734 79
Interlocking and other signal apparatus	983 27
Telegraph and telephone lines—Railway	2,185 21
Telegraph and telephone lines—Commercial	4,650 00
Station buildings and fixtures	18,593 32
Shops, engine houses and turntables	7,941 30
Water stations	*3,048 40
Fuel stations	32 15
Transportation of materials	73 85
Stationery and printing	34 52
Insurance	123 86
	$130,604 10

*Cr.

SUMMARY.

Expended on construction, main line	$81 901 64
" construction, Elk Lake Branch	13,134 86
" construction, Iroquois Falls Branch	31,625 97
" James Bay Exploration	3,943 74
" Gowganda, Sudbury Survey	58 17
" Elk Lake, Gowganda Survey	907 68
" Porcupine, Sudbury Survey	123 45
" Nipissing Junction spur	57 52
" Electrification of Road	1,354 82
" Equipment	255,809 78
" additions and betterments	211,459 80
Adjustment, Porcupine Branch	*2,503 75
	$597.873 68

*Cr.

CONSTRUCTION.

AMOUNT EXPENDED UNDER APPROPRIATION UP TO OCTOBER 31st 1914.

Loading siding, Foster spur	$2,464 07
Shelter station, Elk Lake Branch	1,549 50
Extension to C. P. R. east of Regina St., North Bay	1,044 64
Completion, Iroquois Falls Branch	31,625 97
Completion, Elk Lake Branch	13,134 86
New entrance to Cochrane	65,569 55
New entrance to C. P. R., North Bay	12,167 67
Electrification, Kerr Lake Branch	11,773 21
New car barn equipment, N. C. R., Cobalt	20,694 44
Sub-station, N. C. R., Cobalt	4,690 68
New rolling stock, N. C. R.	15,590 28
Reconstruction telegraph and telephone, Elk Lake Branch	1,116 68
New passing siding, Cobalt	2,167 18
Extension, spur, New Liskeard	9,610 71
Reconstruction telegraph and telephone, M.P., 20.47	7,741 78
	$200,941 22

ADDITIONS AND BETTERMENTS.

AMOUNTS EXPENDED UNDER APPROPRIATIONS UP TO OCTOBER 31st 1914.

Hard coal storehouse, North Bay	$248 57
Shelter station, Belleek	262 28
Sidings and station grounds, Widdifield	1,468 23
Additional train despatching equipment	600 63
Heating Agent's house, Haileybury	330 00
Extension, siding, Wawbewawa	39
" " Wahtaybeag	1,549 65
" La Rose siding, Cobalt	1,378 94
" C. N. R. crossing, North Bay	16 12
Removal siding and scales, Cobalt	718 30
Shelter station, Connaught	275 85
New passing siding, M.P. 77	744 73
Completion steel viaducts, M.P. 153.5	23,387 07
Completion plate girded bridge, M.P. 48.7	2,368 61
Shoulder tie plates	1,255 49
Roadbed underdrainage, Main line	*47 72
Completion cuts and fills, Charlton Branch	2,932 66
Completion new fencing	1,263 36
Reinforcing trestle bridge decks, Division 2	1,620 98
Completion culvert decks, Porcupine Branch	2,781 80
Completion sidings, Long Lake, Charlton	61 50
Filling trestle, M.P. 69.71	66 26
Terminal station, Earlton	1,607 17
Completion steel viaducts, M.P. 196.8	45,804 38
Agent's house, Charlton	2,715 87
Siding and stock chutes, South Porcupine	2,243 54
Through siding, Schumacher	690 89
Agent's and section house, Timmins	5,055 59
New fencing and renewal, Main line	5,068 80
Ties, plates and anti rail creepers	741 93
Addition to passing siding, Riddle	4,388 83
Re-arrangement yards, Cobalt	35,255 85
Extension siding, Thornloe	8,413 01
Loading siding, Nushka	451 80
Widening embankments, Division 1	12,957 40
Roadbed underdrainage, Division 2	6,265 46
New crossings, main line	1,549 94
Shelter station and platform, Lounsbury	226 31
Alteration station, Widdifield	930 19

Station and Agent's house, Heaslip	$4,454 08
Rail racks and track signs	35 62
Betterments to passenger equipment	910 55
Betterments to passenger equipment	910 55
Telegraph and telephone line, M.P. 20.47	3,587 10
Trestle Bridge, M.P. 58.75	4,498 06
" " M.P., 59.41	4,723 65
" " M.P. 42.18	3,005 33
Agent's house, Elk Lake station	4,489 61
Fixing roadway, shed, track, North Bay	578 08
Filling trestle, M.P. 57.31	7,935 55
New passing siding, Cobalt	1,237 56
Filling trestle, M.P. 55.94	1,039 77
Loading siding, Kenabeek	1,032 69
Superheater in Pacific Type Locomotives	5,671 00
Station grounds, Temagami	1,330 53
New coach siding, North Bay	1,399 97
Extension town siding, Uno Park	2,419 03
Alteration to station, Porcupine	783 21
Drilling well, Uno Park	843 24
Filling at Chamberlain and Wawbewawa	224 38
Dynamite siding, Cobalt	1,867 31
New freight shed, Porquis Junction	2,066 91
Equipment replacement	*31,871 00
Total	$454,312 32

*Cr.

SUMMARY.

STATEMENTS.

Additions and betterments statement	$454,312 32
Construction statement	200,941 22
Total	$655,253 54

LEDGER ACCOUNTS.

Construction	$81,901 64
Elk Lake Branch	13,134 86
Iroquois Falls Branch	31,625 97
James Bay Exploration	3,943 74
Gowganda, Sudbury Survey	58 17
Elk Lake, Gowganda Survey	907 68
Porcupine, Sudbury Survey	123 45
Electrification of road	1,354 82
Nipissing Junction spur	57 52
Porcupine Branch	*2,503 75
Additions and betterments	211,459 80
Equipment	255,809 78
Replacement account	31,871 00
	$597,873 68
Subsidiary lines, Nipissing Central Railway	57,379 86
Total	$655,253 54

*Cr.

Comparative Statement, Expenses, Fiscal Years 1913—1914.

MAINTENANCE OF WAY AND STRUCTURES.

——	1913 From Nov. 1, 1912, to Oct. 31, 1913.	1914 From Nov. 1, 1913, to Oct. 31, 1914.	Accounts.	1913 From Nov. 1, 1912, to Oct. 31, 1913.	1914 From Nov. 1, 1913, to Oct. 31, 1914.
	$	$		$	$
November	31,974 98	33,346 87	Superintendence	25,819 43	26,755 18
December	26,909 35	37,221 50	Ballast	9,787 47	15,470 56
January	26,065 84	18,684 59	Ties	47,845 96	34,700 65
February	18,841 55	23,239 09	Rails	23,663 64	21,429 22
March	23,285 60	21,554 55	Track materials	6,737 34	11,003 27
April	26,798 41	20,982 08	Roadway and track	202,842 15	196,797 43
May	35,898 83	33,694 74	Removal snow, sand, etc	24,940 30	18,322 82
June	39,698 28	50,252 22	Bridges, trestles and culverts	33,109 31	30,142 15
July	42,712 02	52,786 60	Under grade crossing	152 09	94 59
August	48,397 22	43,033 17	Grade crossings, fences, etc.	5,178 65	5,094 70
September	52,693 23	44,563 11	Snow and sand fences	.....	.....
October	57,544 73	28,687 63	Signals and interlocking plants	70 54	8 05
			Telegraph and telephone lines	8,704 87	7,894 22
			Buildings, fixtures and grounds	44,009 64	44,939 89
			Roadway tools and supplies	6,117 45	5,882 65
			Injuries to persons	115 00	30 00
			Stationery and printing	1,059 70	994 84
			Other expenses	.....	3 30
			Maintenance joint tracks, yards and facilities, Dr	.....	.....
			Maintenance joint tracks, yards and facilities, Cr.	9,333 50	11,517 37
	430,820 04	408,046 15		430,820 04	408,046 15

Comparative Statement, Expenses, Fiscal Years 1913—1914.

MAINTENANCE OF EQUIPMENT.

	1913 From Nov. 1, 1912, to Oct. 31, 1913.	1914 From Nov. 1, 1913, to Oct. 31. 1914.	Accounts.	1913 From Nov. 1, 1912, to Oct. 31, 1913.	1914 From Nov. 1, 1913 to Oct. 31, 1914.
	$ c.	$ c.		$ c.	$ c.
November	19,928 56	19,267 83	Superintendence	6,439 18	7,871 19
December	23,668 43	24,430 22	Steam locomotives, repairs	88,365 12	85,611 36
January	23,032 35	19,557 23	Steam locomotives, renewals	.....	8,391 12
February	20,760 23	24,684 77	Steam locomotives, depreciation	14,995 56	14,828 22
March	23,496 84	24,984 56	Passenger train cars, repairs	56,186 06	64,287 32
April	26,271 90	32,663 00	Passenger train cars, renewals	Cr. 9 85	3,859 40
May	20,350 41	25,115 91	Passenger train cars, depreciation	8,956 80	9,012 36
June	19,437 99	24,543 43	Freight cars, repairs	24,597 23	32,106 29
July	18,945 22	23,388 11	Freight cars, renewals	.....	21,548 25
August	17,612 11	24,152 58	Freight cars, depreciation	12,889 92	12,727 08
September	17,181 13	23,733 22	Work equipment, repairs	17,607 85	15,472 12
October	11,948 76	18,415 01	Work equipment, renewals	Cr. 33 00	.....
			Work equipment, depreciation	2,987 52	3,337 44
			Shop machinery and tools	7,109 96	4,807 71
			Injuries to persons	141 81	62 81
			Stationery and printing	929 34	1,013 20
			Other expenses	1,470 43	.....
	$242,633 93	$284,935 87		$242,633 93	$284,935 87

Comparative Statement, Expenses, Fiscal Years 1913 and 1914.

TRANSPORTATION EXPENSES.

Month.	1913 From Nov. 1, 1912 to Oct. 31, 1913.	1914 From Nov. 1, 1913 to Oct. 31, 1914.	Accounts.	1913 From Nov. 1, 1912 to Oct. 31, 1913.	1914 From Nov. 1, 1913 to Oct. 31, 1914.
	$ c.	$ c.		$ c.	$ c.
Nov.	56,492 17	56,298 31	Superintendence	11,978 05	13,923 83
Dec.	59,592 83	57,982 05	Dispatching trains	13,942 29	13,497 82
Jan.	59,903 01	58,963 37	Station employees	120,228 02	127,724 24
Feb.	57,969 66	60,846 37	Car service association	404 57	514 21
March	65,448 22	61,606 99	Coal and ore docks	.....	.....
April	58,881 81	44,996 71	Station supplies and expenses	13,258 83	14,045 43
May	53,788 53	55,905 59	Yardmasters and their clerks	12,149 28	11,415 53
June	51,971 40	53,875 37	Yard conductors and brakemen	32,531 20	28,895 98
July	49,020 86	52,994 16	Yard switch and signal tenders	1,245 07	1,533 51
Aug.	52,555 90	52,573 37	Yard supplies and expenses	782 55	736 60
Sept.	51,843 67	50,611 76	Yard enginemen	18,193 34	19,417 60
Oct.	63,012 02	45,033 15	Yard enginehouse expenses	6,482 20	5,968 42
			Yard locomotives, fuel	37,082 83	32,871 21
			Yard locomotives, water	1,091 06	870 48
			Yard locomotives, lubricants	604 49	529 49
			Yard locomotives, supplies	354 39	350 42
			Operating joint yards and terminals, Dr	7,058 75	Cr. 2,687 38
			Operating joint yards and terminals, Cr	69,253 67	68,902 24
			Road enginemen	70,867 09	74,420 66
			Road enginehouse expenses	41,515 36	41,790 24
			Road locomotives, fuel	222,774 37	185,311 82
			Road locomotives, water	15,901 34	17,435 13
			Road locomotives, lubricants	3,213 51	2,987 78
			Road locomotives, supplies	1,450 65	1,175 61
			Road trainmen	80,678 91	82,076 42
			Train supplies, expenses	20,160 87	25,886 37
			Clearing wrecks	1,328 31	1,698 54
			Telegraph and telephone operation	2,496 10	1,351 73
			Stationery and printing	8,505 90	9,059 72
			Other expenses	659 60	1,460 71
			Loss and damage, freight	2,301 37	2,703 69
			Loss and damage, baggage Cr.	45 22	241 27
			Damage to property	.....	.....
			Damage to stock on Right of Way	276 70	221 67
			Injuries to persons	261 97	3,160 69
	680,480 08	651,687 20		680,480 08	651,687 20

Comparative Statement, Expenses, Fiscal years 1913—1914

TRAFFIC EXPENSES

Month.	1913 From Nov. 1, 1912 to Oct. 31, 1913.	1914 From Nov. 1, 1913 to Oct. 31, 1914.	Accounts.	1913 From Nov. 1, 1912 to Oct. 31, 1913.	1914 From Nov. 1, 1913 to Oct. 31, 1914.
November.....	$1,314 70	$1,698 90	Superintendence.....	$9,864 54	$10,400 53
ecember.....	1,242 08	1,661 49	Outside Agents.....	133 16	1,208 41
January.....	1,431 96	1,668 49	Advertising	2,665 26	3,537 13
February	1,290 73	1,236 81	Traffic Associations.....	81 15	336 61
March.....	1,730 74	1,449 91	Industrial and Immigration Bureaus...	1,771 25	1,871 01
April.....	1,836 80	1,387 00	Stationery and Printing.....	2,342 00	1,518 96
May.....	1,279 70	2,588 44			
June.....	1,441 46	1,254 70			
July.....	1,505 54	1,667 45			
August.....	1,524 82	1,541 56			
September.....	1,150 92	1,210 56			
October	1,107 91	1,507 34			
	$16,857 36	$18,872 65		$16,857.36	$18,872 65

Comparative Statement, Expenses, Fiscal years 1913 and 1914.

GENERAL EXPENSES.

Month.	1913	1914	Accounts.	1913	1914
	From Nov. 1, 1912, to Oct. 31, 1913.	From Nov. 1, 1913, to Oct. 31, 1914.		From Nov. 1, 1912, to Oct. 31, 1913.	From Nov. 1, 1913, to Oct. 31, 1914.
	$ c.	$ c.		$ c.	$ c.
November	9,606 32	9,790 03	Salaries and general expenses	19,174 09	20,529 41
December	7,536 08	9,188 88	Salaries and expenses of clerks etc	35,225 08	37,144 53
January	10,126 89	8,944 80	General office supplies and expenses	4,721 94	6,164 41
February	8,753 36	8,290 92	Law expenses	4,361 33	4,842 04
March	8,521 15	8,613 07	Insurance	39,071 90	34,840 96
April	10,167 15	8,803 14	Stationery and printing	2,893 36	2,934 37
May	7,657 32	8,293 95	Other expenses	1,595 82	123 35
June	8,586 96	9,660 40	General administration of joint tracks, yards and terminals, Dr		
July	8,526 14	7,903 00			
August	9,885 67	8,184 06	General administration of joint tracks, yards and terminals, Cr	284 92	1,546 71
September	9,500 37	9,285 51			
October	7,891 19	7,777 60			
	106,758 60	105,032 36		106,758 60	105,032 36

COMPARATIVE STATEMENT SHOWING EARNINGS AND EXPENDITURES IN OPERATION

PERIOD 1905 TO 1914, INCLUSIVE.

Year.	Freight.	Passenger.	Other Revenue.	Maintenance of Ways and Structures.	Maintenance of Equipment.	Traffic Expenses.	Transportation Expenses.	General Expenses.	Total Revenue.	Total Expenditure.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
1905.....	121,530 46	108,681 76	23,508 33	25,072 89	12,533 68	.....	88,342 41	13,823 52	253,720 55	139,772 50
1906.....	230,552 63	254,759 33	58,706 89	77,265 87	46,382 65	.....	215,256 08	23,587 98	544,018 85	362,492 58
1907.....	390,894 29	388,343 03	74,282 69	112,395 22	88,016 79	.....	412,160 52	32,839 76	853,520 01	645,412 29
1908.....	471,203 41	366,504 53	135,357 67	125,563 43	119,563 01	9,789 99	405,907 58	24,863 45	973,065 61	688,397 43
1909 (10 mos.)	756,141 66	483,110 89	121,972 32	191,170 18	107,078 96	14,920 04	436,768 41	49,989 34	1,361,224 87	794,796 88
1910.....	852,886 46	606,967 91	131,997 65	380,314 75	137,340 46	17,705 31	556,740 45	76,045 66	1,591,852 02	1,165,361 36
1911.....	974,678 33	653,063 01	153,223 49	353,918 92	164,145 69	17,461 22	567,316 97	78,911 74	1,780,964 83	1,181,998 63
1912.....	929,464 66	599,681 73	178,303 68	346,964 01	249,683 22	12,499 96	676,963 33	93,625 91	1,707,450 07	1,384,697 69
1913.....	906,476 16	576,049 37	173,629 32	430,820 04	242,633 93	16,857 36	680,480 08	106,758 60	1,656,154 85	1,477,550 01
1914.....	952,090 35	544,820 08	173,988 44	408,046 15	284,935 87	18,872 65	651,687 20	105,032 36	1,670,898 87	1,468,574 23
	6,585,918 41	4,581,981 64	1,224,970 48	2,451,531 46	1,452,314 26	108,106 53	4,691,623 03	605,478 32	12,392,870 53	9,309,053 60

SUMMARY

Freight Revenue	$6,585,918 41	Maintenance of Ways and Structures	$2,451,531 46
Passenger Revenue	4,581,981 64	Maintenance of Equipment	1,452,314 26
Other Revenue	1,224,970 48	Transportation Expenses	4,691,623 03
		Traffic Expenses	108,106 53
		General Expenses	605,478 32
Total Revenue	$12,392,870 53	Total Expenditure	$9,309,053 60

Total Revenue from Transportation	$12,392,870 53
Total Expenditure	9,309,053 60
	3,083,816 93
Earnings—Ore Royalties, etc.	632,897 41
	3,716,714 34
Paid Treasurer of Ontario	3,313,245 16
Balance at Profit and Loss	403,469 18

Comparative Statement of Earnings and Expenditures

TEMISKAMING AND NORTHERN

No.	RECEIPTS.	Per Cent.	1912 November.	Per Cent.	1913 November.
	I. Revenue from transportation:		$ c.		$ c.
1	Freight revenue	.....	76,345 39	.....	77,953 83
2	Passenger revenue	.....	46,674 69	.....	41,979 86
3	Excess baggage revenue	.....	568 54	.....	757 85
4	Parlor and chair car revenue	.....	116 15	.....	101 80
5	Mail revenue	.....	1,732 43	.....	1,428 40
6	Express revenue	.....	3,558 51	.....	3,274 07
7	Milk revenue (on passenger trains)	.....	31 56	.....	.....
8	Other passenger train revenue	.....	.....	.....	.....
9	Switching revenue	.....	1,028 37	.....	505 97
10	Special service train revenue	.....	153 55	.....	10 00
11	Miscellaneous transportation revenue	.....	.....	.....	.....
	Totals	.....	130,209 19	.....	126,011 78
	II. Revenue from operations other than transportation :—				
12	Station and train privileges	.....	329 16	.....	329 16
13	Parcel room receipts	.....	.....	.....	.....
14	Storage—freight	.....	53 08	.....	70 97
15	Storage—baggage	.....	73 80	.....	62 35
16	Car service demurrage	.....	1,567 25	.....	469 35
17	Telegraph and telephone	.....	2,512 93	.....	2,394 39
18	Rents of buildings and other property	.....	606 36	.....	1,101 77
19	Miscellaneous	.....	.....	.....	195,77
	Totals	.....	5,142 58	.....	4,623 76
	Total revenue	.....	135,351 77	.....	130,635 54
	EXPENDITURES.				
i.	Maintenance of way and structures	23.6	31,974 98	25.4	33,346 87
ii.	Maintenance of equipment	14.7	19,928 56	14.8	19,267 83
iii.	Traffic expenses	.9	1,314 70	1.3	1,698 90
iv.	Transportation expenses	41.8	56,492 17	43.3	56,298 31
v.	General expenses	7.1	9,606 32	7.5	9,790 03
	Total operating expenses	88.1	119,316 73	92.3	120,401 94
	Balance	.....	16,035 04	.....	10,233 60
	Other Income:				
	Ore royalties	.....	9,758 27	.....	.....
	Hire of equipment	.....	699 07	.....	.....
	Outside operations	.....	.....	.....	.....
	Totals	.....	26,492 38	.....	10,233 60
	Deductions from Income:				
	Hire of equipment	.....	.....	.....	1,800 98
	Outside operations	.....	.....	.....	10 25
	Net result	.....	26,492 38	.....	8,422 37

by Months, November, 1912, to October, 1914.

ONTARIO RAILWAY.

Per Cent.	1912 December,	Per Cent.	1913 December.	Per Cent.	1913 January	Per Cent.	1914 January.	No.
	$ c.		$ c.		$ c,			
.....	75,025 79	.....	77,641 80	.....	81,616 71	.....	72,860 49	1
.....	44,583 94	.....	45,569 33	.....	33,841 93	.....	34,328 04	2
.....	426 67	.....	329 56	.....	529 65	.....	526 86	3
.....	129 45	.....	106 40	.....	99 75	.....	118 40	4
.....	1,732 42	.....	1,428 38	.....	1,789 36	.....	1,656 98	5
.....	3,438 81	.....	3,877 10	.....	2,963 49	.....	3,734 23	6
.....	66 26	.....	.....	.....	54 91	.....	.....	7
.....	.....	.....	.....	.....	.....	.....	.....	8
.....	481 44	.....	848 98	.....	1,078 21	.....	615 11	9
.....	3,834 55	.....	322 50	.....	.....	.....	.....	10
.....	.....	.....	.....	.....	.....	.....	.....	11
.....	129,719 33	.....	130,124 05	.....	121,974 01	.....	113,840 11	
.....	329 16	.....	329 16	.....	329 16	.....	362 49	12
.....	.....	.....	.....	.....	.....	.....	.....	...
.....	41 10	.....	89 21	.....	62 47	.....	65 33	13
.....	63 20	.....	58 10	.....	46 35	.....	57 75	14
.....	2,016 00	.....	966 00	.....	2,347 05	.....	1,721 00	15
.....	2,304 71	.....	2,644 65	.....	2,233 09	.....	2,635 40	16
.....	888 39	.....	755 34	.....	4,761 06	.....	5,578 47	17
.....	119 88	.....	252 08	.....	7 31	.....	192 15	18
.....	5,762 44	.....	5,094 54	.....	9,786 49	.....	10,612 59	19
.....	135,481 77	.....	135,218 59	.....	131,760 50	.....	124,452 70	
19.8	26,909 35	27.5	37,221 50	19.8	26,065 84	15.0	18,684 59	i.
17.4	23,668 43	18.1	24,430 22	17.5	23,032 35	15.7	19,557 23	ii.
.9	1,242 08	1.2	1,661 49	1.1	1,431 96	1.2	1,668 49	iii.
43.9	59,592 83	42.9	57,982 05	45.4	59,903 01	47.4	58,963 37	iv.
5.6	7,536 08	6.8	9,188 88	7.7	10,126 89	7.2	8,944 80	v.
87.8	118,948 77	96.5	130,484 14	91.5	120,560 05	86.6	107,818,48	
.....	16,533 00	.....	4,734 45	.....	11,200 45	.....	16,634 22	
.....	900 33	.....	.....	.....	.....	.....	.....	
.....	928 44	.....	.....	.....	.....	.....	.....	
.....	.....	.....	712 90	.....	126 50	.....	76 64	
.....	18,361 77	.....	5,447 35	.....	11,326 95	.....	16,710 86	
.....	.....	.....	321 61	.....	602 01	.....	3,508 45	
.....	2,314 26	.....	.....	.....	.....	.....	.....	
.....	16,047 51	.....	5,125 74	.....	10,724 9-	.....	13,202 41	

Comparative Statement of Earnings and Expenditures by

No.	RECEIPTS.	Per cent.	1913 February.	Per Cent.	1914. February.	Per Cent.	1913 March.
	I. Revenue from transportation:		$ c.		$ c.		$ c.
1	Freight revenue	.....	66,495 42	.....	75,947 15	.....	75,142 39
2	Passenger revenue	.....	34,292 78	.....	28,593 15	.....	41,968 17
3	Excess baggage revenue	.....	558 68	.....	462 30	.....	497 35
4	Parlor and chair car revenue	.....	132 65	.....	109 50	.....	143 80
5	Mail revenue	.....	1,659 20	.....	1,492 75	.....	1,792 96
6	Express revenue	.....	2,150 48	.....	2,536 96	.....	2,549 41
7	Milk revenue (on passenger trains)	.....	46 66	.....	.....	.....	48 75
8	Other passenger train revenue	.....	.....	.....	.....	.....	.....
9	Switching revenue	.....	702 05	.....	451 34	.....	71 34
10	Special service train revenue	.....	.....	.....	.....	.....	.....
11	Miscellaneous transportation revenue	.....	.....	.....	.....	.....	.....
	Totals	.....	106,037 92	.....	107,593 15	.....	122,214 17
	II. Revenue from operations other than transportation						
12	Station and train privileges	.....	329 16	.....	362 57	.....	329 16
13	Parcel room receipts	.....	.....	.....	.....	.....	.....
14	Storage—freight	.....	38 07	.....	144 67	.....	74 25
15	Storage—baggage	.....	46 20	.....	40 75	.....	47 85
16	Car service demurrage	.....	650 90	.....	1,086 90	.....	265 60
17	Telegraph and telephone	.....	2,138 38	.....	2,568 68	.....	3,194 86
18	Rents of buildings and other property	.....	1,481 23	.....	2,938 29	.....	1,867 61
19	Miscellaneous	.....	50	.....	301 35	.....	6 25
	Totals	.....	4,684 44	.....	7,443 21	.....	5,785 58
	Total revenue	.....	110,722 36	.....	115,036 36	.....	127,999 75
	EXPENDITURES.						
i.	Maintenance of way and structures	17.	18,841 55	20.2	23,239 09	18.2	23,285 60
ii.	Maintenance of equipment	18.8	20,760 23	21.4	24,684 77	18.4	23,496 84
iii.	Traffic expenses	1.2	1,290 73	1.1	1,236 81	1.3	1,730 74
iv.	Transportation expenses	52.3	57,969 66	52.9	60,846 37	51.1	65,448 22
v.	General expenses	7.9	8,753 36	7.2	8,290 92	6.7	8,521 15
	Total operating expenses	97.2	107,615 53	102.8	118,297 96	95.7	122,482 55
	Balance	.....	3,106 83	.....	Dr.3,261 60	.....	5,517 20
	Other Income						
	Ore royalties	.....	4,178 90	.....	7,249 54	.....	.....
	Hire of equipment	.....	.....	.....	.....	.....	.....
	Outside Operations	.....	.....	.....	.....	.....	.....
	Totals	.....	7,285 73	.....	3,987 94	.....	5,517 20
	Deductions from income:						
	Hire of equipment	.....	1,437 43	.....	2,490 52	.....	2,608 63
	Outside operations	.....	104 68	.....	4 73	.....	40 65
	Net result	.....	5,743 62	.....	1,492 69	.....	2,867 92

Months, November, 1912, to October, 1914—Continued.

Per Cent.	1914 March.	Per Cent.	1913 April.	Per Cent.	1914 April.	Per Cent.	1913 May.	No.
	$ c.		$ c.		$ c.		$ c.	
.....	105,622 23	.....	87,030 69	.....	89,273 67	.....	74,228 91	1
.....	39,727 32	.....	47,386 33	.....	50,036 31	.....	51,546 15	2
.....	486 61	.....	740 92	.....	453 17	.....	701 85	3
.....	122 05	.....	142 00	.....	111 45	.....	163 70	4
.....	1,611 61	.....	1,792 96	.....	1,617 15	.....	1,871 92	5
.....	2,686 52	.....	3,368 85	.....	3,129 98	.....	3,429 41	6
.....	.....	.....	70 65	.....	.....	.....	18 00	7
.....	.....	.....	.....	.....	.....	.....	.....	8
.....	492 60	.....	1,247 20	.....	393 74	.....	925 15	9
.....	63 12	.....	.....	.....	148 75	.....	25 00	10
.....	....	.....	.....	.....	.....	.....	.....	11
.....	150,812 06	.....	141,779 60	.....	145,164 22	.....	132,910 09	
.....	362 49	.....	329 16	.....	362 49	.....	329 16	12
.....	.....	.....	.....	.....	.....	.....	.....	13
.....	87 25	.....	43 33	.....	42 79	.....	75 09	14
.....	37 05	.....	68 15	.....	72 75	.....	61 35	15
.....	1,107 40	.....	778 00	.....	709 00	.....	493 00	16
.....	3,083 03	.....	2,591 63	.....	4,581 60	.....	2,782 48	17
.....	1,111 05	.....	766 28	.....	5,190 18	.....	4,294 30	18
.....	110 35	.....	18 61	.....	136 24	.....	17 31	19
.....	5,898 62	.....	4,595 16	.....	11,095 05	.....	8,052 69	
.....	156,710 68	.....	146,374 76	.....	156,259 27	.....	140,962 78	
13.8	21,554 55	18.3	26,798 41	13.4	20,982 08	25.5	35,898 83	i.
15.9	24,984 56	18.	26,271 90	20.9	32,663 00	14.4	20,350 41	ii.
.9	1,449 91	1.3	1,836 80	.9	1,387 00	.9	1,279 70	iii.
39.3	61,606 99	40.2	58,881 81	28.8	44,996 71	38.2	53,788 53	iv.
5.5	8,613 07	6.9	10,167 15	5.6	8,803 14	5.4	7,657 32	v.
75.4	118,209 08	84.7	123,956 07	69.6	108,831 93	84.4	118,974 79	
.....	38,501 60	.....	22,418 69	.....	47,427 34	.....	21,987 99	
.....	22,303 58	.....	.....	.....	Dr. 357 94	.....	.....	
.....	.....	.....	.....	.....	.....	.....	390 80	
.....	.....	.....	.....	.....	.....	.....	.....	
.....	60,805 18	.....	22,418 69	.....	47,069 40	.....	22,378 79	
.....	3,405 56	.....	4,966 69	.....	3,040 01	.....	.....	
.....	26 22	.....	116 95	.....	1,644 29	.....	.....	
.....	57,373 40	.....	17,335 05	.....	42,385 10	.....	22,378 79	

Comparative Statement of Earnings and Expenditures by

No.	RECEIPTS	Per Cent.	1914 May.	Per Cent.	1913 June.	Per Cent.	1914 June.
			$ c		$ c.		$ c
	I. Revenue from transportation:						
1	Freight revenue	.....	78,003 88	.....	65,319 92	.....	83,820 50
2	Passenger revenue	.....	52,647 86	.....	51,975 73	.....	52,029 50
3	Excess baggage revenue	.....	673 72	.....	660 65	.....	543 03
4	Parlor and chair car revenue.	.....	126 30	.....	178 25	.....	101 10
5	Mail revenue	.....	1,617 15	.....	1,714 00	.....	1,640 79
6	Express revenue	.....	3,578 10	.....	4,119 98	.....	
7	Milk revenue (on passenger trains)	.....	12 20	.....	15 20	.....	3,960 19 .....
8	Other passenger train revenue	.....	.....	.....	.....	.....	.....
9	Switching revenue	.....	588 17	.....	678 32	.....	1,698 93
10	Special service train revenue.	.....	648 75	.....	108 75	.....	1,744 25
11	Miscellaneous Transportation Revenue	.....	.....	.....	.....	.....	.....
	Totals	.....	137,896 13	.....	124,770 80	.....	145,538 29
	II. Revenue from operations other than transportation:						
12	Station and train privileges	.....	362 50	.....	329 16	.....	362 50
13	Parcel room receipts	.....	.....	.....	.....	.....	.....
14	Storage—freight	.....	61 79	.....	112 20	.....	132 62
15	Storage—baggage	.....	45 90	.....	58 95	.....	67 35
16	Car service demurrage	.....	854 00	.....	175 85	.....	474 00
17	Telegraph and Telephone	.....	4,272 54	.....	2,870 51	.....	4,598 93
18	Rents of buildings and other property	.....	439 97	.....	1,076 60	.....	1,519 17
19	Miscellaneous	.....	904 09	.....	20	.....	113 83
	Totals	.....	6,940 79	.....	4,623 47	.....	7,268 40
	Total Revenue	.....	144,836 92	.....	129,394 27	.....	152,806 69
	EXPENDITURES.						
i.	Maintenance of way and structures	23.3	33,694 74	30.7	39,698 28	32.9	50,252 22
ii.	Maintenance of equipment	17.3	25,115 91	15.	19,437 99	16.1	24,543 43
iii.	Traffic expenses	1.8	2,588 44	1.1	1,441 46	.8	1,254 70
iv.	Transportation expenses	38.6	55,905 59	40.2	51,971 40	35.2	53,875 37
v.	General expenses	5.7	8,293 95	6.6	8,586 96	6.3	9,660 40
	Total operating expenses.	86.7	125,598 63	93.6	121,136 09	91.3	139,586 12
	Balance	.....	19,238 29	.....	8,258 18	.....	13,220 57
	Other income:						
	Ore royalties	.....	.....	.....	12,915 65	.....	.....
	Hire of equipment	.....	467 95	.....	.....	.....	.....
	Outside Operations	.....	.....	.....	.....	.....	.....
	Totals	.....	19,706 24	.....	21,173 83	.....	13,220 57
	Deductions from income:						
	Hire of equipment	.....	.....	.....	1,056 48	.....	109 97
	Outside operations	.....	2,267 74	.....	12 38	.....	2,343 73
	Net result	.....	17,438 50	.....	20,104 97	.....	10,766 87

Months, November, 1912, to October, 1914---Continued.

Per Cent.	1913 July.	Per Cent.	1914 July.	Per Cent.	1913 August.	Per cent	1914 August.	No.
	$ c.		$ c.		$ c.		$ c.	
.....	68,904 28	.....	79,821 77	.....	70,249 91	.....	74,232 75	1
.....	59,492 86	.....	54,544 37	.....	53,628 66	.....	53,457 76	2
.....	506 40	.....	503 00	.....	476 44	.....	471 46	3
.....	140 50	.....	158 95	.....	186 35	.....	168 90	4
.....	1,485 53	.....	1,943 16	.....	1,468 17	.....	1,886 04	5
.....	4,110 41	.....	4,672 83	.....	3,871 50	.....	4,115 53	6
.....	14 75	.....	.....	.....	.....	.....	12 00	7
.....	.....	.....	.....	.....	.....	.....	.....	8
.....	610 42	.....	1,420 08	.....	270 27	.....	.....	9
.....	293 75	.....	777 60	.....	.....	.....	413 73	10
.....	.....	.....	.....	.....	.....	.....	.....	11
.....	135,558 90	.....	143,841 76	.....	130,151 30	.....	134,758 17	
.....	329 16	.....	362 50	.....	329 16	.....	362 50	12
.....	.....	.....	.....	.....	.....	.....	.....	13
.....	127 39	.....	41 93	.....	56 00	.....	55 05	14
.....	86 60	.....	48 60	.....	87 20	.....	47 35	15
.....	626 30	.....	486 00	.....	781 00	.....	621 00	16
.....	2,793 58	.....	3,661 41	.....	2,704 12	.....	4,280 25	17
.....	4,784 37	.....	1,074 56		4,136 09	.....	5,130 37	18
.....	57 23	.....	24 02	.....	29 69	.....	18 47	19
.....	8,804 63	.....	5,699 02	.....	8,123 26	.....	10,514 99	
.....	144,363 53	.....	149,540 78	.....	138,274 56	.....	145,273 16	
29.8	42,712 02	35.3	52,786 60	35.	48,397 22	29.6	43,033 17	i.
13.1	18,945 22	15.6	23,388 11	12.7	17,612 11	16.7	24,152 58	ii.
1.	1,505 54	1.1	1,667 45	1.1	1,524 82	1.	1,541 56	iii.
33.9	49,020 86	35.4	52,994 16	38.	52,555 90	36.2	52,573 37	v.
5.9	8,526 14	5.3	7,903 00	7.2	9,885 67	5.8	8,481 06	v.
83.7	120,709 78	92.7	138,739 32	94.	129,975 72	89.3	129,781 74	
.....	23,653 75	.....	10,801 46	.....	8,298 84	.....	15,491 42	
.....	384 78	.....	12,530 95	.....	.....	.....	.....	
.....	1,538 03	.....	138 84	.....	760 64	.....	.....	
.....	.....	.....	.....	.....	163 61	.....	.....	
.....	25,576 56	.....	23,471 25	.....	9,223 09	.....	15,491 42	
.....	.....	.....	.....	.....	.....	.....	1,464 21	
.....	67 14	.....	2,294 58	.....	.....	.....	2,454 42	
.....	25,509 42	.....	21,176 67	.....	9,223 09	.....	11,572 79	

Comparative Statement of Earnings and Expenditures by

No.	RECEIPTS.	Per cent.	1913 September.	Per cent.	1914 September	Per cent	1913 October.	Per cent.
			$ c.		$ c.		$ c	
	I. Revenue from transportation:							
1	Freight revenue	.....	77,660 17	.....	63,823 53		88,456 58	.....
2	Passenger revenue	.....	56,065 00	.....	47,536 72	....	54,593 13	.....
3	Excess baggage revenue	.....	666 56	.....	529 26	....	680 60	.....
4	Parlor and chair car revenue	.....	166 80	.....	134 90	....	171 90	.....
5	Mail revenue	.....	1,542 68	.....	2,391 48	....	1,548 22	.....
6	Express revenue	.....	4,687 64	.....	3,981 89	....	3,922 05	.....
7	Milk revenue (on passenger trains)	.....	.....	.....	26 25	....	.....	.....
8	Other passenger train revenue	.....	.....	.....	.....	....	.....	.....
9	Switching revenue	.....	442 51	.....	159 82	....	581 78	.....
10	Special service train revenue	.....	.....	.....	.....	....	717 50	.....
11	Miscellaneous transportation revenue	.....	.....	.....	.....	....	.....	.....
	Totals	.....	141,231 36	.....	118,583 85	....	150,671 76	.....
	II. Revenue from operations other than transportation:							
12	Station and train privileges	.....	329 16	.....	362 50	....	329 16	.....
13	Parcel room receipts	.....	.....	.....	.....	....	.....	.....
14	Storage—freight	.....	124 23	.....	102 35	....	92 84	.....
15	Storage—baggage	.....	60 25	.....	48 65	....	86 10	.....
16	Car service demurrage	.....	2,406 00	.....	688 00	....	659 50	.....
17	Telegraph and telephone	.....	3,098 45	.....	2,896 45	....	3,320 99	.....
18	Rents of buildings and other property	.....	546 66	.....	1,489 02	....	12,200 38	.....
19	Miscellaneous	.....	103 27	.....	42 16	....	208 69	.....
	Totals	.....	6,668 02	.....	5,629 13	....	16,897 66	.....
	Total Revenue	.....	147,899 38	.....	124,212 98	....	167,569 42	.....
	EXPENDITURES.							
i.	Maintenance of way and structures	35.6	52,693 23	35.9	44,563 11	34.3	57,544 73	21.1
ii.	Maintenance of equipment	11.6	17,181 13	19.1	23,733 22	7.1	11,948 76	13.6
iii.	Traffic expenses	.8	1,150 92	1.	1,210 56	.6	1,107 91	1.1
iv.	Transportation expenses	35.1	51,843 67	40.7	50,611 76	37.6	63,012 02	33.1
v.	General expenses	6.4	9,500 37	7.5	9,285 51	4.7	7,891 19	5.7
	Total operating expenses.	89.5	132,369 32	104.2	129,404 16	84.3	141,504 61	74.6
	Balance	.....	15,530 06	.....	†5,191 18	....	26,064 81	.....
	Other income:							
	Ore royalties	.....	38,173 05	.....	6,532 68	....	15,110 22	.....
	Hire of equipment	.....	79 08	.....	1,122 31	....	557 40	.....
	Outside operations	.....	695 86	.....	110 38	....	2,685 55	.....
	Totals	.....	54,478 05	.....	2,575 19	....	44,417 98	.....
	Deductions from income:							
	Hire of equipment	.....	.....	.....	.....	....	.....	.....
	Outside operations	.....	.....	.....	2,426 67	....	.....	.....
	Net results	.....	54,478 05	.....	148 52	....	44,417 98	.....

†Dr.

Months, November, 1912, to October, 1914.---Continued.

1914 October.	Per cent	1913 Total.	Per cent	1914 Total.	Increase.	Decrease.	Net Increase.	Net decrease.	No.
$ c.		$ c.		$ c.	$ c.	$ c.	$ c.	$ c.	
75,088 75	....	906,476 16	....	952,090 35	45,614 19	.....	.....	.....	1
44,369 86	....	576,049 37	....	544,820 08	.....	31,229 29	.....	.....	2
704 14	....	7,014 31	....	6,440 96	.....	573 35	.....	.....	3
116 00	....	1,771 30	....	1,475 75	.....	295 55	.....	.....	4
1,773 68	....	20,129 85	....	20,487 57	357 72	.....	.....	.....	5
3,399 19	....	42,170 54	....	42,946 59	776 05	.....	.....	.....	6
15 70	....	366 74	....	66 15	.....	300 59	.....	.....	7
.....	....	.....	....	.....	.....	.....	.....	.....	8
388 64	....	6,096 47	....	7,563 38	1,466 91	.....	.....	.....	9
648 75	....	7,153 69	....	4,777 45	.....	2,376 24	.....	.....	10
.....	....	.....	....	.....	.....	.....	.....	.....	11
126,504 71	....	1,567,228 43	....	1,580,668 28	48,214 87	34,775 02	13,439 85	.....	
362 50	....	3,949 92	....	4,283 36	333 44	.....	.....	.....	12
.....	....	.....	....	.....	.....	.....	.....	.....	13
118 54	....	900 05	....	1,012 50	112 45	.....	.....	.....	14
45 15	....	786 00	....	631 75	.....	154 25	.....	.....	15
472 00	....	12,766 45	....	9,654 65	.....	3,111 80	.....	.....	16
3,448 35	....	32,545 73	....	41,065 68	8,519 95	.....	.....	.....	17
4,946 51	....	37,409 33	....	31,274 70	.....	6,134 63	.....	.....	18
17 44	....	568 94	....	2,307 95	1,739 01	.....	.....	.....	19
9,410 49	....	88,926 42	....	90,230 59	10,704 85	9,400 68	1,304 17	.....	
135,915 20	....	1,656,154 85	....	1,670,898 87	58,919 72	44,175 70	14,744 02	.....	
28,687 63	26.	430,820 04	24.4	408,046 15	.....	22,77 9	.....	.....	i.
18,415 01	14.1	242,633 93	17.	284,935 87	42,301 94	.....	.....	.....	ii.
1,507 34	1.	16,857 36	1.1	18,872 65	2,015 29	.....	.....	.....	iii
45,033 15	41.1	680,480 08	39.	651,687 20	.....	28,792 88	.....	.....	iv.
7,777 60	6.5	106,758.60	6.3	105,032 36	.....	1,726 24	.....	.....	v.
101,420 73	88.7	1,477,550 01	87.8	1,468,574 23	44,317 23	53,293 01	.....	8,975 78	
34,494 47	....	178,604 84	....	202,324 64	23,719 80	.....	.....	.....	
7,614 64	....	81,421 20	....	55,874 45	.....	25,546 75	.....	.....	
175 20	....	4,953 46	....	1,904 30	.....	3,049 16	.....	.....	
8 72	....	3,671 52	....	908 64	.....	2,762 88	.....	.....	
42,293 03	....	268,651 02	....	261,012 03	23,719 80	31,358 79	.....	7,638 99	
.....	....	10,671 24	....	16,141 31	5,470 07	.....	.....	.....	
2,420 86	....	2,656 06	....	15,893 49	13,237 43	.....	.....	.....	
39,872 17	....	255,323 72	....	228,977 23	5,012 30	31,358 79	.....	26,346 49	

Comparative Statement of Earnings and Expenditures by

No.	Maintenance of Way and Structures	1912 November.	1913 November.	1912 December.	1913 December,
		$ c.	$ c.	$ c.	$ c.
1	Superintendence	2,677 05	2,006 25	2,526 44	2,635 20
2	Ballast	772 96	107 11	29 72	270 05
3	Ties	1,886 73	300 58	217 75	1,051 74
4	Rails	864 06	1,417 99	2,817 16	864 41
5	Other Track Material	290 75	1,189 86	739 88	1,763 88
6	Roadway and Track	16,235 26	20,033 15	11,621 79	12,809 52
7	Removal of Snow, Sand and Ice	528 62	701 21	2,484 75	2,152 02
8	Tunnels	.....	.....	.....	.....
9	Bridges, Trestles and Culverts	2,269 67	1,567 67	4,144 26	9,532 14
10	Over and Under Grade Crossings	.....	.....	109 04	.....
11	Grade Crossings, Fences, Cattle Guards and Signs	103 83	562 73	51 24	262 61
12	Snow and Sand Fences and Snowsheds	.....	.....	.....	.....
13	Signals and Interlocking Plants	.....	1 82	12	.....
14	Telegraph and Telephone Lines	1,022 56	1,085 24	768 44	776 88
15	Electric Power Transmission	.....	.....	.....	.....
16	Buildings, Fixtures and Grounds	5,180 06	5,013 38	1,266 38	5,458 54
17	Docks and Wharves	.....	.....	.....	.....
18	Roadway Tools and Supplies	293 47	252 24	351 19	364 31
19	Injuries to Persons	.....	.....	30 00	50 00
20	Stationery and Printing	110 98	93 35	32 39	52 53
21	Other Expenses	.....	.....	.....	.....
22	Maintaining Joint Tracks, and other Facilities—Dr.	.....	.....	.....	.....
23	Maintaining Joint Tracks and other Facilities—Cr.	Cr. 261 02	Cr. 985 71	Cr. 281 20	Cr. 822 33
	Totals	31,974 98	33,346 87	26,909 35	37,221 50
	Maintenance of Equipment.				
24	Superintendence	599 24	647 36	522 20	741 83
25	Steam Locomotives—Repairs	6,922 00	7,547 33	6,822 95	7,619 65
26	" " Renewals	.....	.....	.....	.....
27	" " Depreciation	1,249 63	1,249 63	1,249 63	1,249 63
28	Electric Locomotives—Repairs	.....	.....	.....	.....
29	" " Renewals	.....	.....	.....	.....
30	" " Depreciation	.....	.....	.....	.....
31	Passenger Train Cars—Repairs	4,357 49	4,253 11	7,928 66	5,354 68
32	" " " Renewals	Cr. 9 85	.....	.....	321 62
33	" " " Depreciation	746 40	751 03	746 40	751 03
34	Freight Train Cars—Repairs	3,631 32	1,718 29	3,320 19	3,951 10
35	" " " Renewals	.....	.....	.....	1,474 18
36	" " " Depreciation	1,074 16	1,060 59	1,074 16	1,060 59
37	Electric Equipment of Cars—Repairs	.....	.....	.....	.....
38	" " " Renewals	.....	.....	.....	.....
39	" " " Depreciation	.....	.....	.....	.....
40	Floating Equipment—Repairs	.....	.....	.....	.....
41	" " Renewals	.....	.....	.....	.....
42	" " Depreciation	.....	.....	.....	.....
43	Work Equipment—Repairs	495 72	1,168 17	1,012 04	798 41
44	" " Renewals	.....	.....	.....	.....
45	" " Depreciation	248 96	278 12	248 96	278 12
46	Shop Machinery and Tools	456 31	387 60	533 56	541 67
47	Power Plant Equipment	.....	.....	.....	.....
48	Injuries to Persons	67 85	.....	.....	50 00
49	Stationery and Printing	Cr. 3 29	29 99	63 49	88 99
50	Other Expenses	92 62	176 61	146 19	148 72
51	Maintaining Joint Equipment at Terminals—Dr	.....	.....	.....	.....
52	Maintaining Joint Equipment at Terminals—Cr	.....	.....	.....	.....
	Totals	19,928 56	19,267 83	23,668 43	24,430 22

Months, November. 1912, to October, 1914.---Continued

1913 January.	1914 January.	1913 February.	1914 February.	1913 March.	1914 March.	No
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
2,019 39	2,084 51	2,099 56	2,498 48	1,887 48	2,244 89	1
61 01	.....	87 95	Cr. 2 20	3 22	8 35	2
Cr. 213 85	.....	Cr. 303 69	.....	Cr. 252 34	.....	3
789 07	216 71	176 39	97 50	379 26	Cr. 198 75	4
342 71	913 78	633 81	805 21	824 83	1,586 51	5
11,342 79	4,935 43	7,005 40	7,050 61	8,055 23	10,027 93	6
4,585 19	5,498 83	6,888 97	7,748 19	7,280 03	1,971 79	7
.....	.....	.....	.....	.....	.....	8
3,954 60	2,662 66	1,394 52	1,975 14	1,805 94	4,792 94	9
.....	.....	.....	.....	4 17	.....	10
80 26	40 57	41 86	244 47	104 18	47 21	11
.....	.....	.....	.....	.....	.....	12
12	2 90	3 50	.....	.....	.....	13
753 94	842 72	504 14	768 40	553 39	686 08	14
.....	.....	.....	.....	.....	.....	15
2,354 52	2,245 18	1,835 13	2,181 01	2,572 31	1,193 95	16
.....	.....	.....	.....	.....	.....	17
644 95	487 35	Cr. 738 49	639 36	828 00	420 98	18
10 00	.....	.....	.....	.....	.....	19
68 50	59 57	43 06	126 27	172 78	64 37	20
.....	.....	.....	.....	.....	.....	21
.....	.....	.....	.....	.....	.....	22
Cr. 727 36	Cr. 1,305 62	Cr. 830 56	Cr. 893 35	Cr. 932 88	Cr. 1,291 70	23
26,065 84	18,684 59	18,841 55	23,239 09	23,285 60	21,554 55	
568 74	757 02	510 78	816 18	573 55	623 85	24
8,932 76	7,574 94	7,293 15	7,906 83	8,146 45	7,530 31	25
.....	.....	.....	.....	.....	.....	26
1,249 63	1,249 63	1,249 63	1,249 63	1,249 63	1,249 63	27
.....	.....	.....	.....	.....	.....	28
.....	.....	.....	.....	.....	.....	29
.....	.....	.....	.....	.....	.....	30
4,124 21	4,842 24	4,355 30	5,021 42	5,092 23	5,283 76	31
.....	.....	.....	321 62	.....	402 02	32
746 40	751 03	746 40	751 03	746 40	751 03	33
5,129 99	1,549 38	3,859 68	3,347 62	3,064 50	3,746 94	34
.....	.....	.....	1,859 35	.....	2,276 84	35
1,074 16	1,060 59	1,074 16	1,060 59	1,074 16	1,060 59	36
.....	.....	.....	.....	.....	.....	37
.....	.....	.....	.....	.....	.....	38
.....	.....	.....	.....	.....	.....	39
.....	.....	.....	.....	.....	.....	40
.....	.....	.....	.....	.....	.....	41
.....	.....	.....	.....	.....	.....	42
215 71	820 65	647 64	1,468 75	2,531 16	1,259 34	43
.....	.....	Cr. 33 00	.....	.....	.....	44
248 96	278 12	248 96	278 12	248 96	278 12	45
489 50	557 88	688 12	322 84	523 96	370 62	46
.....	.....	.....	.....	.....	.....	47
.....	.....	.....	.....	.....	.....	48
45 04	53 01	109 93	93 20	121 50	105 24	49
207 25	62 74	9 48	187 59	124 34	46 27	50
.....	.....	.....	.....	.....	.....	51
.....	.....	.....	.....	.....	.....	52
23,032 35	19,557 23	20,760 23	24,684 77	23,496 84	24,984 56	

Comparative Statement of Earnings and Expenditures by

No.	Maintenance of Way and Structures.	1913 April.	1914 April.	1913 May.	1914 May.
		$ c.	$ c.	$ c.	$ c.
1	Superintendence	1,943 67	1,952 61	2,263 61	2,378 28
2	Ballast	64 80	77 82	116 52	85 54
3	Ties	2,359 38	272 85	5,343 28	6,242 12
4	Rails	430 92	29 86	3,066 32	2,242 29
5	Other Track Material	1,727 75	1,064 62	493 86	1,057 55
6	Roadway and Track	12,865 54	12,313 89	15,934 51	16,661 70
7	Removal of Snow, Sand and Ice	1,598 89	223 89	1,350 95	.....
8	Tunnels	.....	.....	.....	.....
9	Bridges, Trestles and Culverts	1,865 72	1,717 76	2,937 84	611 71
10	Over and Under Grade Crossings	2 85	5 84	109 97	.....
11	Grade Crossings, Fences, Cattle Guards and Signs	132 04	344 99	521 13	511 19
12	Snow and Sand Fences and Snowsheds	.....	.....	.....	.....
13	Signals and Interlocking Plants	11 40	1 57	.....	82
14	Telegraph and Telephones Lines	536 74	222 48	522 10	404 31
15	Electric Power Transmission	.....	.....	.....	.....
16	Buildings, Fixtures and Grounds	2,771 33	2,829 54	2,965 56	3,683 25
17	Docks and Wharves	.....	.....	.....	.....
18	Roadway Tools and Supplies	786 42	573 52	592 41	421 55
19	Injuries to Persons	25 00	.....	.....	.....
20	Stationery and Printing	37 35	85 57	113 19	186 70
21	Other Expenses	.....	.....	.....	.....
22	Maintaining Joint Tracks and other facilities—Dr.	.....	.....	.....	.....
23	Maintaining Joint Tracks, and other facilities—Cr.	Cr. 361 39	Cr. 734 73	Cr. 432 42	Cr. 792 27
	Totals	26,798 41	20,982 08	35,898 83	33,694 74
	Maintenance of Equipment.				
24	Superintendence	542 50	509 66	537 70	751 17
25	Steam Locomotives—Repairs	8,173 69	6,401 70	8,314 49	6,321 35
26	" " Renewals	.....	8,391 12	.....	.....
27	" " Depreciation	1,249 63	1,249 63	1,249 63	1,221 74
28	Electric Locomotives—Repairs	.....	.....	.....	.....
29	" " Renewals	.....	.....	.....	.....
30	" " Depreciation	.....	.....	.....	.....
31	Passenger Train Cars—Repairs	4,610 03	4,721 49	3,798 98	5,880 51
32	" " " Renewals	.....	402 02	.....	402 02
33	" " " Depreciation	746 40	751 03	746 40	751 03
34	Freight Train Cars—Repairs	4,518 84	2,571 59	316 28	3,229 78
35	" " " Renewals	.....	2,276 84	.....	2,276 84
36	" " " Depreciation	1,074 16	1,060 59	1,074 16	1,060 59
37	Electric Equipment of Cars—Repairs	.....	.....	.....	.....
38	" " " Renewals	.....	.....	.....	.....
39	" " " Depreciation	.....	.....	.....	.....
40	Floating Equipment—Repairs	.....	.....	.....	.....
41	" " Renewals	.....	.....	.....	.....
42	" " Depreciation	.....	.....	.....	.....
43	Work Equipment—Repairs	4,065 47	3,280 25	3,047 11	2,367 18
44	" " Renewals	.....	.....	.....	.....
45	" " Depreciation	248 96	278 12	248 96	278 12
46	Shop Machinery and Tools	710 54	553 59	896 09	403 05
47	Power Plant Equipment	.....	.....	.....	.....
48	Injuries to Persons	13 68	1 62	.....	16
49	Stationery and Printing	102 78	101 63	89 77	62 66
50	Other Expenses	215 22	112 12	30 84	109 71
51	Maintaining Joint Equipment at Terminals—Dr.	.....	.....	.....	.....
52	Maintaining Joint Equipment at Terminals—Cr.	.....	.....	.....	.....
	Totals	26,271 90	32,663 00	20,350 41	25,115 91

Months, November, 1912, to October, 1914.

1913 June.	1914 June.	1913 July.	1914 July.	1913 August.	1914 August.	No.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
1,587 91	2,380 78	2,419 76	2,228 77	1,601 50	2,218 62	1
986 67	42 61	799 13	1,687 06	2,561 79	8,478 31	2
1,730 21	10,810 77	4 949 64	5,141 70	6,346 67	4,839 58	3
2,163 46	7,534 95	2,388 43	6,419 06	6,213 33	583 80	4
120 94	447 18	408 03	657 24	492 42	748 76	5
22,514 58	22,675 95	23,880 54	25,456 04	22,300 87	23,502 56	6
25 27	.....	.....	.....	.....	.....	7
.....	.....	.....	.....	.....	.....	8
3,208 89	408 00	3,297 88	3,633 26	2,543 71	Cr. 2,119 32	9
600 36	.....	Cr. 683 80	.....	.....	.....	10
483 10	406 33	683 95	1,444 62	1,331 73	858 90	11
.....	.....	.....	.....	.....	.....	12
.....	.....	.....	82	.....	.....	13
638 65	424 91	741 50	645 50	805 86	594 39	14
.....	.....	.....	.....	.....	.....	15
5,417 83	5,068 41	3,709 58	5,696 33	3,759 55	3,644 86	16
.....	.....	.....	.....	.....	.....	17
992 26	713 39	583 63	833 34	806 01	413 02	18
.....	.....	.....	.....	.....	.....	19
66 11	93 92	188 43	52 84	50 32	66 22	20
.....	.....	.....	.....	.....	.....	21
.....	.....	.....	.....	.....	.....	22
Cr. 837 96	Cr. 754 98	Cr. 654 68	Cr. 1,109 98	Cr. 416 54	Cr. 796 53	23
39,698 28	50,252 22	42,712 02	52,786 60	48,397 22	43,033 17	
500 65	572 28	493 18	630 98	528 66	628 53	24
7,619 63	7,708 66	7,410 97	6,443 31	6,461 86	7,318 75	25
.....	.....	.....	.....	.....	.....	26
1,249 63	1,221 74	1,249 63	1,221 74	1,249 63	1,221 74	27
.....	.....	.....	.....	.....	.....	28
.....	.....	.....	.....	.....	.....	29
.....	.....	.....	.....	.....	.....	30
4,256 18	5,659 90	3,810 69	5,230 52	4,493 50	6,107 84	31
.....	402 02	.....	402 02	.....	402 02	32
746 40	751 03	746 40	751 03	746 40	751 03	33
1,050 14	2,540 71	1,812 07	4,015 43	1,654 79	2,879 06	34
.....	2,276 84	.....	2,276 84	.....	2,276 84	35
1,074 16	1,060 59	1,074 16	1,060 59	1,074 16	1,060 59	36
.....	.....	.....	.....	.....	.....	37
.....	.....	.....	.....	.....	.....	38
.....	.....	.....	.....	.....	.....	39
.....	.....	.....	.....	.....	.....	40
.....	.....	.....	.....	.....	.....	41
.....	.....	.....	.....	.....	.....	42
1,894 94	1,358 79	1,106 06	573 26	759 50	704 73	43
.....	.....	.....	.....	.....	.....	44
248 96	278 12	248 96	278 12	248 96	278 12	35
578 58	355 65	650 08	313 04	318 54	218 50	36
.....	.....	.....	.....	.....	.....	37
.....	17	.....	10 49	7 59	.....	48
74 39	168 09	146 93	60 16	77 21	101 03	49
144 33	188 84	196 09	120 58	Cr. 8 69	203 80	50
.....	.....	.....	.....	.....	.....	51
.....	.....	.....	.....	.....	.....	52
19,437 99	24,543 43	18,945 22	23,388 11	17,612 11	24,152 58	

Comparative Statement of Earnings and Expenditures by

No.	Maintenance of Way and Structures.	1913 September.	1914 September.	1913 October.	1914 October.
		$ c.	$ c.	$ c.	$ c.
1	Superintendence	2,572 70	2,232 60	2,220 36	1,894 19
2	Ballast	3,866 72	4,196 24	436 98	519 67
3	Ties	8,307 19	3,303 16	17,474 99	2,738 15
4	Rails	2,036 41	101 36	2,338 83	2,120 04
5	Other Track Material	Cr. 341 54	428 98	1,003 90	339 70
6	Roadway and Track	26,062 00	21,738 30	25,023 64	19,592 35
7	Removal of Snow, Sand and Ice			197 63	26 89
8	Tunnels				
9	Bridges, Trestles and Culverts	2,905 79	8,448 40	2,780 49	3,088 21
10	Over and Under Grade Crossings	9 50			88 75
11	Grade Crossings, Fences, Cattle Guards and Signs	747 80	323 24	897 53	47 84
12	Snow and Sand Fences and Snowsheds				
13	Signals and Interlocking Plants			55 40	12
14	Telegraph and Telephone Lines	739 97	823 43	1,117 58	619 88
15	Electric Power Transmission				
16	Buildings, Fixtures and Grounds	6,724 49	3,566 44	5,452 90	4,359 00
17	Docks and Wharves				
18	Roadway, Tools and Supplies	410 96	249 53	566 64	514 06
19	Injuries to Persons			50 00	Cr. 20 00
20	Stationery and Printing	91 44	41 39	85 15	72 11
21	Other Expenses				3 30
22	Maintaining Joint Tracks and other Facilities—Dr.				
23	Maintaining Joint Tracks and other Facilities—Cr.	Cr. 1,440 20	Cr. 889 96	Cr. 2,157 29	Cr. 1,140 21
	Totals	52,693 23	44,563 11	57,544 73	28,687 63
	Maintenance of Equipment.				
24	Superintendence	519 52	713 10	542 46	479 23
25	Steam Locomotive—Repairs	6,594 15	7,357 32	5,673 02	5,881 21
26	" " Renewals				
27	" " Depreciation	1,249 63	1,221 74	1,249 63	1,221 74
28	Electric Locomotive—Repairs				
29	" " Renewals				
30	" " Depreciation				
31	Passenger Train Cars—Repairs	4,208 73	5,914 05	5,150 06	6,017 80
32	" " " Renewals		402 02		402 02
33	" " " Depreciation	746 40	751 03	746 40	751 03
34	Freight Train Cars—Repairs	839 07	2,147 85	Cr. 4,599 64	408 54
35	" " " Renewals		2,276 84		2,276 84
36	" " " Depreciation	1,074 16	1,060 59	1,074 16	1,060 59
37	Electric Equipment of Cars—Repairs				
38	" " " Renewals				
39	" " " Depreciation				
40	Floating Equipment—Repairs				
41	" " Renewals				
42	" " Depreciation				
43	Work Equipment—Repairs	785 87	928 71	1,046 63	743 88
44	" " Renewals				
45	" " Depreciation	248 96	278 12	248 96	278 12
46	Shop Machinery and Tools	620 89	422 55	643 79	360 72
47	Power Plant Equipment				
48	Injuries to Persons		16	52 69	21
49	Stationery and Printing	87 97	58 38	13 62	90 82
50	Other Expenses	205 78	200 76	106 98	Cr. 1,557 74
51	Maintaining Joint Equipment at Terminals—Dr.				
52	Maintaining Joint Equipment at Terminals—Cr.				
	Totals	17,181 13	23,733 22	11,948 76	18,415 01

Months, November, 1912, to October, 1914—Continued.

1913 Total.	1914 Total.	Increase.	Decrease.	Net Increase.	Net Decrease.	No.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
25,819 43	26,755 18	935 75	.....	.....	.....	1
9,787 47	15,470 56	5,683 09	.....	.....	.....	2
47,845 96	34,700 65	.....	13,145 31	.....	.....	3
23,663 64	21,429 22	.....	2,234 42	.....	.....	4
6,737 34	11,003 27	4,265 93	.....	.....	.....	5
202,842 15	196,797 43	.....	6,044 72	.....	.....	6
24,940 30	18,322 82	.....	6,617 48	.....	.....	7
.....	.....	.....	.....	.....	.....	8
33,109 31	30,142 15	.....	2,967 16	.....	.....	9
152 09	94 59	.....	57 50	.....	.....	10
5,178 65	5,094 70	.....	83 95	.....	.....	11
.....	.....	.....	.....	.....	.....	12
70 54	8 05	.....	62 49	.....	.....	13
8,704 87	7,894 22	.....	810 65	.....	.....	14
.....	.....	.....	.....	.....	.....	15
44,009 64	44,939 89	930 25	.....	.....	.....	16
.....	.....	.....	.....	.....	.....	17
6,117 45	5,882 65	.....	234 80	.....	.....	18
115 00	30 00	.....	85 00	.....	.....	19
1,059 70	994 84	.....	64 86	.....	.....	20
.....	3 30	3 30	.....	.....	.....	21
.....	.....	.....	.....	.....	.....	22
Cr. 9,333 50	Cr. 11,517 37	Cr. 2,183 87	.....	.....	.....	23
430,820 04	408,046 15	9,634 45	32,408 34	.....	22,773 89	
6,439 18	7,871 19	1,432 01	.....	.....	.....	24
88,365 12	85,611 36	.....	2,753 76	.....	.....	25
.....	8,391 12	8,391 12	.....	.....	.....	26
14,995 56	14,828 22	.....	167 34	.....	.....	27
.....	.....	.....	.....	.....	.....	28
.....	.....	.....	.....	.....	.....	29
.....	.....	.....	.....	.....	.....	30
56,186 06	64,287 32	8,101 26	.....	.....	.....	31
Cr. 9 85	3,859 40	3,869 25	.....	.....	.....	32
8,956 80	9,012 36	55 56	.....	.....	.....	33
24,597 23	32,106 29	7,509 06	.....	.....	.....	34
.....	21,548 25	21,548 25	.....	.....	.....	35
12,889 92	12,727 08	.....	162 84	.....	.....	36
.....	.....	.....	.....	.....	.....	37
.....	.....	.....	.....	.....	.....	38
.....	.....	.....	.....	.....	.....	39
.....	.....	.....	.....	.....	.....	40
.....	.....	.....	.....	.....	.....	41
.....	.....	.....	.....	.....	.....	42
17,607 85	15,472 12	.....	2,135 73	.....	.....	43
Cr. 33 00	.....	33 00	.....	.....	.....	44
2,987 52	3,337 44	349 92	.....	.....	.....	45
7,109 96	4,807 71	.....	2,302 25	.....	.....	46
.....	.....	.....	.....	.....	.....	47
141 81	62 81	.....	79 00	.....	.....	48
929 34	1,013 20	83 86	.....	.....	.....	49
1,470 43	.....	.....	1,470 43	.....	.....	50
.....	.....	.....	.....	.....	.....	51
.....	.....	.....	.....	.....	.....	52
242,633 93	284,935 87	53,373 29	9,071 35	42,301 94	.....	

Comparative Statement of Earnings and Expenditures by

No.	Traffic Expenses.	1912 November.	1913 November.	1912 December.	1913 December.
		$ c.	$ c.	$ c.	$ c.
53	Superintendence	792 87	768 99	780 02	856 63
54	Outside Agencies	.....	243 75	6 08	56 88
55	Advertising	202 76	275 00	162 50	338 20
56	Traffic Associations	.....	.....	.....	31 73
57	Fast Freight Lines	.....	8 25	.....	.....
58	Industrial and Immigration Bureaus.	179 90	333 32	120 54	127 35
59	Stationery and Printing	139 17	69 59	172 94	250 70
60	Other Expenses	.....	.....	.....	.....
	Totals	1,314 70	1,698 90	1,242 08	1,661 49
	Transportation Expenses.				
61	Superintendence	861 58	1,033 79	869 45	1,084 18
62	Despatching Trains	1,044 91	1,080 00	1,072 08	1,106 08
63	Station Employees	9,759 95	10,765 54	9,515 88	10,609 40
64	Weighing and Car Service Associations	44 96	249 6	21 13	20 22
65	Coal and Ore Docks	.....	.....	.....	.....
66	Station Supplies and Expenses	1,133 99	1,553 66	1,318 92	1,610 06
67	Yardmasters and their Clerks	924 98	933 74	998 22	1,014 97
68	Yard Conductors and Brakemen	2,567 93	2,486 96	3,097 91	2,837 00
69	Yard Switch and Signal Tenders	186 96	77 90	168 53	192 65
70	Yard Supplies and Expenses	88 75	67 21	83 81	81 09
71	Yard Enginemen	1,426 58	1,547 69	1,490 80	1,709 78
72	Engine-house Expenses—Yard	615 18	479 39	702 37	553 52
73	Fuel for Yard Locomotives	3,375 12	2,986 66	3,657 06	2,998 80
74	Water for Yard Locomotives	23 20	78 20	158 91	39 89
75	Lubricants for Yard Locomotives	54 88	43 13	53 18	49 63
76	Other Supplies for Yard Locomotives	26 30	25 22	27 16	36 92
77	Operating Joint Yards and Terminals —Dr.	805 03	646 67	802 82	641 82
78	Operating Joint Yards and Terminals —Cr.	Cr. 5,591 04	Cr. 5,928 64	Cr 5,998 90	Cr 5,745 32
79	Motormen	.....	.....	.....	.....
80	Road Enginemen	5,638 92	5,572 07	6,103 62	5,829 33
81	Engine-house Expenses—Road	3,072 38	3,578 60	3,760 50	4,099 85
82	Fuel for Road Locomotives	19,371 54	16,769 39	19,307 08	17,006 37
83	Water for Road Locomotives	786 12	1,405 84	1,324 82	1,731 20
84	Lubricants for Road Locomotives	263 27	258 43	312 80	265 12
85	Other Supplies for Road Locomotives	124 15	98 96	128 27	110 98
86	Operating Power Plants	.....	.....	.....	.....
87	Purchased Power	.....	.....	.....	.....
88	Road Trainmen	6,884 63	6,123 89	6,896 04	6,380 73
89	Train Supplies and Expenses	1,733 50	2,025 14	1,717 81	1,622 14
90	Interlockers, Block and other Signals— Operations	.....	.....	.....	.....
91	Crossing, Flagmen and Gatemen	.....	.....	.....	.....
92	Drawbridge Operation	.....	.....	.....	.....
93	Clearing Wrecks	30 94	232 67	Cr. 10 36	66 18
94	Telegraph and Telephone—Operation	187 12	190 00	188 86	230 00
95	Operating Floating Equipment	.....	.....	.....	.....
96	Express Service	.....	.....	.....	.....
97	Stationery and Printing	810 11	695 58	973 20	820 03
98	Other Expenses	111 90	96 81	24 00	.....
99	Loss and Damage—Freight	59 71	393 89	752 06	824 18
100	Loss and Damage—Baggage	.....	50 00	50 00	.....
101	Damage to Property	.....	.....	.....	.....
102	Damage to Stock on Right-of-Way	3 62	40 00	25 00	25 00
103	Injuries to Persons	65 00	864 96	.....	130 25
104	Operating Joint Tracks—Dr.	.....	.....	.....	.....
105	Operating Joint Tracks—Cr.	.....	.....	.....	.....
	Totals	56,492 17	56,298 31	59,592 83	57,982 05

Months, November, 1912, to October, 1914---Continued.

1913 January.	1914 January.	1913 February.	1914 February.	1913 March.	1914 March.	No
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
840 23	946 16	759 33	881 11	860 86	797 39	53
.....	27 29	1 78	15 62	1 78	107 37	54
277 24	385 47	270 95	90 50	390 00	236 40	55
.....	22 32	50	8 03	.....	8 34	56
.....	.....	.....	.....	.....	.....	57
164 84	101 90	167 78	142 38	184 28	155 77	58
149 65	185 35	90 39	99 17	293 82	144 64	59
.....	.....	.....	.....	.....	.....	60
1,431 96	1,668 49	1,290 73	1,236 81	1,730 74	1,449 91	
918 62	1,118 96	922 50	1,079 48	951 33	1,146 40	61
1,129 47	1,116 76	1,249 76	1,083 66	1,226 84	1,100 77	62
9,996 84	10,403 68	9,798 53	10,612 24	10,145 57	10,738 48	63
128 37	63 98	.....	59 23	54 02	.....	64
.....	.....	.....	.....	.....	.....	65
1,721 61	1,591 26	2,125 54	1,923 00	2,170 94	1,856 88	66
1,033 39	1,046 09	1,110 95	926 06	1,122 39	920 00	67
3,003 22	2,820 62	2,606 13	2,700 31	2,893 58	2,865 86	68
129 39	155 06	87 02	259 80	127 11	114 09	69
98 31	84 27	96 78	72 27	72 96	64 48	70
1,545 59	1,794 02	1,420 54	1,702 50	1,633 44	1,829 71	71
611 34	583 83	460 10	535 31	590 15	624 55	72
3,446 01	2,929 98	2,953 34	2,932 03	3,278 56	3,194 94	73
82 45	165 25	187 27	68 71	69 90	82 31	74
52 32	53 11	46 81	49 13	55 06	49 99	75
34 59	39 89	28 78	32 67	28 10	33 97	76
782 79	690 80	Cr.2,010 00	656 02	799 61	774 48	77
Cr. 5,801 20	Cr. 5,766 55	Cr. 5,463 97	Cr. 5,361 08	Cr. 5,960 75	Cr. 7,467 99	78
.....	.....	.....	.....	.....	.....	79
6,118 05	5,723 95	5,795 97	5,887 38	6,623 68	6,700 54	80
3,841 60	4,799 42	4,034 95	4,245 18	4,505 78	4,563 58	81
20,711 23	18,017 58	20,392 20	19,302 66	21,609 23	19,863 75	82
1,478 78	1,957 31	1,460 01	1,516 82	1,589 23	1,336 27	83
316 87	265 77	321 93	291 85	345 82	367 52	84
161 37	99 29	219 03	122 06	118 32	102 33	85
.....	.....	.....	.....	.....	.....	86
.....	.....	.....	.....	.....	.....	87
6,989 66	6,230 62	6,598 48	6,097 65	7,441 27	6,805 54	88
871 96	2,429 20	1,508 98	2,399 77	1,868 74	1,976 82	89
.....	.....	.....	.....	.....	.....	90
.....	.....	.....	.....	.....	.....	91
.....	.....	.....	.....	.....	.....	92
32 08	96 50	163 57	18 00	279 22	529 07	93
185 00	230 00	191 61	337 50	270 58	343 60	94
.....	.....	.....	.....	.....	.....	95
.....	.....	.....	.....	.....	.....	96
759 66	672 31	651 05	907 59	619 97	639 60	97
42 17	126 09	50 30	74 50	59 50	16 85	98
Cr. 528 53	Cr. 631 68	945 85	277 00	655 77	77 60	99
10 00	.....	Cr. 11 00	.....	73 83	.....	100
.....	.....	.....	.....	.....	.....	101
.....	15 00	.....	15 00	.....	.....	102
.....	41 00	26 65	22 07	128 47	355 00	103
.....	.....	.....	.....	.....	.....	104
.....	.....	.....	.....	.....	.....	105
59,903 01	58,963 37	57,969 66	60,846 37	65,448 22	61,606 99	

Comparative Statement of Earnings and Expenditures

No.	Traffic Expenses.	1913 April.	1914 April.	1913 May.	1914 May.
		$ c.	$ c.	$ c.	$ c.
53	Superintendence	820 41	839 77	833 17	984 78
54	Outside Agencies	4 24	52 86	94 50	482 55
55	Advertising	182 50	122 50	.....	854 00
56	Traffic Associations	27 22	.....	.....	58 43
57	Fast Freight Lines	.....	.....	.....	.....
58	Industrial and Immigration Bureaus.	150 54	295 60	104 95	112 36
59	Stationery and Printing.	651 89	76 27	247 08	96 32
60	Other Expenses	.....	.....	.....	
	Totals	1,836 80	1,387 00	1,279 70	2,588 44
	Transportation Expenses.				
61	Superintendence	1,136 80	1,208 36	1,000 23	1,163 51
62	Despatching Trains	1,169 42	1,082 55	1,243 13	1,102 77
63	Station Employees	9,426 04	10,539 10	10,411 56	10,240 12
64	Weighing and Car Service Associations	26 23	28 31	.....	188 35
65	Coal and Ore Docks	.....	.....	.....	.....
66	Station Supplies and Expenses	782 90	1,128 57	1,375 46	640 71
67	Yardmasters and their Clerks	1,031 31	915 82	1,003 21	977 65
68	Yard Conductors and Brakemen	2,746 88	2,504 97	2,747 83	2,330 93
69	Yard Switch and Signal Tenders	66 50	44 55	106 78	102 69
70	Yard Supplies and Expenses	51 42	82 94	41 90	51 55
71	Yard Enginemen	1,574 72	1,825 31	1,574 16	1,735 52
72	Engine-house Expenses—Yard	583 78	504 02	441 65	467 95
73	Fuel for Yard Locomotives	3,113 60	2,891 20	2,770 00	2,941 74
74	Water for Yard Locomotives	101 57	69 08	78 64	68 03
75	Lubricants for Yard Locomotives	58 21	49 74	49 95	Cr. 2 63
76	Other Supplies for Yard Locomotives.	28 34	27 04	26 24	26 49
77	Operating Joint Yards and Terminals —Dr	826 19	Cr. 10,024 23	809 20	670 61
78	Operating Joint Yards and Terminals —Cr	Cr. 5,724 50	Cr. 5,761 84	Cr. 5,818 97	Cr. 5,608 97
79	Motormen	.....	.....	.....	.....
80	Road Enginemen	5,999 16	6,063 92	5,740 34	6,058 08
81	Engine-house Expenses—Road	4,034 83	3,574 31	3,078 63	2,944 22
82	Fuel for Road Locomotives	19,503 49	16,247 76	15,977 91	15,764 25
83	Water for Road Locomotives	1,430 31	1,680 86	1,006 99	1,616 56
84	Lubricants for Road Locomotives	248 96	249 15	235 48	Cr. 80 75
85	Other Supplies for Road Locomotives.	90 60	101 85	81 65	96 90
86	Operating Power Plants	.....	.....	.....	.....
87	Purchased Power	.....	.....	.....	.....
88	Road Trainmen	6,959 49	6,015 55	6,947 46	6,347 12
89	Train Supplies and Expenses	1,664 44	1,806 47	1,825 35	3,259 69
90	Interlockers, Block and other Signals—Operations	.....	.....	.....	.....
91	Crossing, Flagmen and Gatemen	.....	.....	.....	.....
92	Drawbridge Operation	.....	.....	.....	.....
93	Clearing Wrecks	233 72	82 46	Cr. 7 35	195 18
94	Telegraph and Telephone—Operation	230 00	20 63	190 00	.....
95	Operating Floating Equipment	.....	.....	.....	.....
96	Express Service	.....	.....	.....	.....
97	Stationery and Printing	828 91	726 46	752 57	1,211 00
98	Other Expenses	117 21	17 90	25 50	Cr. 43 68
99	Loss and Damage—Freight	474 49	832 61	66 64	259 58
100	Loss and Damage—Baggage	56 75	56 00	.....	15 00
101	Damage to Property	.....	.....	.....	.....
102	Damage to Stock on Right-of-Way	10 00	.....	6 39	1 67
103	Injuries to Persons	.....	404 29	.....	1,163 75
104	Operating Joint Tracks—Dr	.....	.....	.....	.....
105	Operating Joint Tracks—Cr	.....	.....	.....	.....
	Totals	58,881 81	44,996 71	53,788 53	55,905 59

by Months, November, 1912, to October, 1914.---Continued.

1913 June.	1914 June.	1913 July.	1914 July.	1913 August.	1914 August.	No.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
774 89	874 84	921 11	885 84	790 27	876 22	53
22 28	32 00	.....	52 23	.....	38 69	54
309 75	180 25	308 10	533 46	353 61	287 85	55
25 05	.....	.....	33 05	10 38	92 55	56
.....	.....	.....	.....	.....	.....	57
144 02	102 37	164 89	121 25	196 54	122 21	58
165 47	65 24	111 44	41 62	174 02	124 04	59
.....	.....	.....	.....	.....	.....	60
1,441 46	1,254 70	1,505 54	1,667 45	1,524 82	1,541 56	
1,008 68	1,220 05	1,111 63	1,287 62	1,035 79	1,130 70	61
1,196 12	1,084 95	1,215 90	1,163 74	1,183 98	1,208 09	62
10,240.66	10,575 22	9,785 20	10,612 75	10,285 03	11,106 46	63
30 35	24 67	24 10	37 14	24 15	28 21	64
.....	.....	.....	.....	.....	.....	65
821 18	1,011 52	540 74	568 84	500 99	418 27	66
922 49	925 00	987 82	932 61	1,001 25	945 29	67
2,557 28	2,396 42	2,649 90	2,447 67	2,557 23	2,184 00	68
67 45	174 44	68 40	217 95	68 59	103 74	69
32 99	53 44	30 22	41 02	54 21	37 80	70
1,360 05	1,872 38	1,425 06	1,679 61	1,609 73	1,471 96	71
441 77	502 15	540 87	497 27	497 31	432 53	72
2,756 44	2,874 90	2,573 23	2,343 61	3,204 02	2,349 43	73
83 12	46 77	26 89	67 14	136 37	62 69	74
52 98	50 14	46 28	50 71	37 40	Cr. 3 74	75
22 55	37 13	19 28	25 39	22 51	29 39	76
793 81	667 17	841 38	633 20	834 33	644 18	77
Cr. 5,641 16	Cr. 5,393 50	Cr. 5,441 58	Cr. 5,747 96	Cr. 6,108 60	Cr. 5,569 53	78
.....	.....	.....	.....	.....	.....	79
5,537 49	6,517 62	5,413 93	6,524 81	5,970 44	6,703 77	80
2,774 88	2,656 41	2,885 68	2,908 34	3,112 05	2,850 20	81
15,784 21	14,894 47	13,130 72	14,547 87	17,589 43	13,600 67	82
1,407 06	1,387 80	1,185 31	1,243 36	1,346 70	1,174 02	83
249 91	253 57	262 23	294 05	227 21	Cr. 44 91	84
95 97	86 26	87 80	83 70	105 95	91 96	85
.....	.....	.....	.....	.....	.....	86
.....	.....	.....	.....	.....	.....	87
6,406 42	7,176 28	6,307 24	8,016 35	6,341 46	7,504 57	88
2,160 11	1,659 95	2,146 74	1,807 04	95 84	1,944 38	89
.....	.....	.....	.....	.....	.....	90
.....	.....	.....	Cr. 110 00	.....	.....	91
.....	.....	.....	.....	.....	.....	92
222 49	188 33	65 52	38 38	156 49	222 34	93
190 90	.....	193 30	.....	190 00	.....	94
.....	.....	.....	.....	.....	.....	95
.....	.....	.....	.....	.....	.....	96
649 62	641 62	762 64	573 78	683 46	742 95	97
68 27	47 92	47 00	10 32	44 00	888 25	98
Cr. 36 76	81 29	98 74	127 85	Cr. 312 70	154 95	99
Cr. 230 30	100 00	.....	20 00	.....	.....	100
.....	.....	.....	.....	.....	.....	101
40 00	.....	1 94	50 00	61 28	75 00	102
Cr. 95 63	61 00	Cr. 13 25	.....	.....	85 75	103
.....	.....	.....	.....	.....	.....	104
.....	.....	.....	.....	.....	.....	105
51,971 40	53,875 37	49,020 86	52,994 16	52,555 90	52,573 37	

Comparative Statement of Earnings and Expenditures by

No.	Traffic Expenses.	1913 September.	1914 September.	1913 October.	1914 October.
		$ c.	$ c.	$ c.	$ c.
53	Superintendence	856 06	798 55	835 32	890 25
54	Outside Agencies	1 24	99 17	1 26	.....
55	Advertising	118 25	45 00	89 60	188 50
56	Traffic Associations	8 92	37 29	9 08	36 62
57	Fast Freight Lines	.....	.....	.....	.....
58	Industrial and Emigration Bureaus	131 97	96 75	61 00	159 75
59	Stationery and Printing	34 48	133 80	111 65	232 22
60	Other Expenses	.....	.....	.....	.....
	Totals	1,150 92	1,210 56	1,107 91	1,507 34
	Transportation Expenses.				
61	Superintendence	1,128 72	1,333 85	1,032 72	1,116 93
62	Despatching Trains	1,111 30	1,246 99	1,099 34	1,121 46
63	Station Employees	10,300 49	11,083 23	10,562 27	10,438 02
64	Weighing and Car Service Associations	25 65	19 68	25 61	19 46
65	Coal and Ore Docks	.....	.....	.....	.....
66	Station Supplies and Expenses	103 26	575 60	663 30	1,167 06
67	Yardmasters and their Clerks	1,003 13	904 97	1,010 14	973 33
68	Yard Conductors and Brakemen	2,439 90	1,721 42	2,663 41	1,598 82
69	Yard Switch and Signal Tenders	66 50	Cr. 11 20	101 84	101 84
70	Yard Supplies and Expenses	70 33	47 46	60 87	53 07
71	Yard Enginemen	1,537 46	1,168 22	1,595 21	1,080 90
72	Engine-house Expenses—Yard	519 67	368 46	478 01	419 44
73	Fuel for Yard Locomotives	2,829 03	2,141 34	3,126 42	2,286 58
74	Water for Yard Locomotives	64 84	60 71	77 90	61 70
75	Lubricants for Yard Locomotives	48 35	103 21	49 07	37 07
76	Other Supplies for Yard Locomotives	62 98	16 61	27 56	19 70
77	Operating Joint Yards and Terminals —Dr.	1,102 01	654 35	671 58	657 55
78	Operating Joint Yards and Terminals —Cr.	Cr.5,845 76	Cr.5,142 10	Cr.5,857 24	Cr.5,408 76
79	Motormen	.....	.....	.....	.....
80	Road Enginemen	5,723 55	6,224 30	6,201 94	6,614 89
81	Engine-house Expenses—Road	3,180 16	2,521 63	3,234 12	3,048 50
82	Fuel for Road Locomotives	15,442 01	12,944 11	23,955 32	6,352 94
83	Water for Road Locomotives	1,277 04	1,242 11	1,608 97	1,142 98
84	Lubricants for Road Locomotives	235 32	584 55	193 71	283 43
85	Other Supplies for Road Locomotives	97 36	93 11	140 18	88 21
86	Operating Power Plants	.....	.....	.....	.....
87	Purchased Power	.....	.....	.....	.....
88	Road Trainmen	6,333 50	7,547 21	6,573 26	7,830 91
89	Train Supplies and Expenses	1,726 48	2,173 35	2,840 92	2,782 42
90	Interlockers, Block and other Signals—Operations	.....	.....	.....	.....
91	Crossing, Flagmen and Gatemen	.....	110 00	.....	.....
92	Drawbridge Operation	.....	.....	.....	.....
93	Clearing Wrecks	Cr. 18 95	24 16	180 94	5 27
94	Telegraph and Telephone—Operation	224 03	.....	254 70	.....
95	Operating Floating Equipment	.....	.....	.....	.....
96	Express Service	.....	.....	.....	.....
97	Stationery and Printing	716 33	520 30	298 38	908 50
98	Other Expenses	45.00	75 55	24 75	150 20
99	Loss and Damage—Freight	188 48	203 31	Cr. 62 38	103 11
100	Loss and Damage—Baggage	5 50	27	.....	.....
101	Damage to Property	.....	.....	.....	.....
102	Damage to Stock on Right-of-Way	100 00	.....	28 47	.....
103	Injuries to Persons	.....	55 00	150 73	Cr. 22 38
104	Operating Joint Tracks—Dr.	.....	.....	.....	.....
105	Operating Joint Tracks—Cr.	.....	.....	.....	.....
	Totals	51,843 67	50,611 76	63,012 02	45,033 15

Months, November, 1912, to October, 1914---Continued.

1913 Total.	1914 Total.	Increase.	Decrease.	Net Increase.	Net Decrease.	No.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
9,864 54	10,400 53	535 99	.....	.....	.....	53
133 16	1,208 41	1,075 25	.....	.....	.....	54
2,665 26	3,537 13	871 87	.....	.....	.....	55
81 15	336 61	255 46	.....	.....	.....	56
.....	.....	.....	.....	.....	.....	57
1,771 25	1,871 01	99 76	.....	.....	.....	58
2,342 00	1,518 96	.....	823 04	.....	.....	59
.....	.....	.....	.....	.....	.....	60
16,857 36	18,872 65	2,838 33	823 04	2,015 29	.....	
11,978 05	13,923 83	1,945 78	.....	.....	.....	61
13,942 29	13,497 82	.....	444 47	.....	.....	62
120,228 02	127,724 24	7,496 22	.....	.....	.....	63
404 57	514 21	109 64	.....	.....	.....	64
.....	.....	.....	.....	.....	.....	65
13,258 83	14,045 43	786 60	.....	.....	.....	66
12,149 28	11,415 53	.....	733 75	.....	.....	67
32,531 20	28,895 98	.....	3,635 22	.....	.....	68
1,245 07	1,533 51	288 44	.....	.....	.....	69
782 55	736 60	.....	45 95	.....	.....	70
18,193 34	19,417 60	1,224 26	.....	.....	.....	71
6,482 20	5,968 42	.....	513 78	.....	.....	72
37,082 83	32,871 21	.....	4,211 62	.....	.....	73
1,091 06	870 48	.....	220 58	.....	.....	74
604 49	529 49	.....	75 00	.....	.....	75
354 39	350 42	.....	3 97	.....	.....	76
7,058 75	Cr. 2,687 38	.....	9,746 13	.....	.....	77
Cr. 69,253 67	Cr. 68,902 24	.....	Cr. 351 43	.....	.....	78
.....	.....	.....	.....	.....	.....	79
70,867 09	74,420 66	3,553 57	.....	.....	.....	80
41,515 36	41,790 24	274 88	.....	.....	.....	81
222,774 37	185,311 82	.....	37,462 55	.....	.....	82
15,901 34	17,435 13	1,533 79	.....	.....	.....	83
3,213 51	2,987 78	.....	225 73	.....	.....	84
1,450 65	1,175 61	.....	275 04	.....	.....	85
.....	.....	.....	.....	.....	.....	86
.....	.....	.....	.....	.....	.....	87
80,678 91	82,076 42	1,397 51	.....	.....	.....	88
20,160 87	25,886 37	5,725 50	.....	.....	.....	89
.....	.....	.....	.....	.....	.....	90
.....	.....	.....	.....	.....	.....	91
.....	.....	.....	.....	.....	.....	92
1,328 31	1,698 54	370 23	.....	.....	.....	93
2,496 10	1,351 73	.....	1,144 37	.....	.....	94
.....	.....	.....	.....	.....	.....	95
.....	.....	.....	.....	.....	.....	96
8,505 90	9,059 72	553 82	.....	.....	.....	97
659 60	1,460 71	801 11	.....	.....	.....	98
2,301 37	2,703 69	402 32	.....	.....	.....	99
Cr. 45 22	241 27	286 49	.....	.....	.....	100
.....	.....	.....	.....	.....	.....	101
276 70	221 67	.....	55 03	.....	.....	102
261 97	3,160 69	2,898 72	.....	.....	.....	103
.....	.....	.....	.....	.....	.....	104
.....	.....	.....	.....	.....	.....	105
680,480 08	651,687 20	29,648 88	58,441 76	.....	28,792 88	

Comparative Statement of Earnings and Expenditures by

No.	General Expenses.	1912 November.	1913 November.	1912 December.	1913 December
		$ c.	$ c.	$ c.	$ c.
106	Salaries and Expenses of General Officers	2,788 00	2,332 41	1,662 04	1,186 25
107	Salaries and Expenses of Clerks and Attendants	3,708 06	2,865 86	3,001 75	2,906 09
108	General Office Supplies and Expenses	361 15	438 50	141 75	664 74
109	Law Expenses	400 00	400 00	415 00	405 00
110	Insurance	2,094 53	3,520 13	1,996 69	3,519 11
111	Relief Department Expenses	.....	.....	.....	.....
112	Pensions	.....	.....	.....	.....
113	Stationery and Printing	265 53	255 82	292 59	530 55
114	Other Expenses	10 00	.....	60 88	.....
115	General Administration Joint Tracks, Yards and Terminals—Dr.	.....	.....	.....	.....
116	General Administration Joint Tracks, Yards and Terminals—Cr.	Cr. 20 95	Cr. 22 69	Cr. 34 62	Cr. 22 86
	Totals	9,606 32	9,790 03	7,536 08	9,188 88

Comparative Statement of Earnings and Expenditures by

No.	General Expenses.	1913 April.	1914 April.	1913 May.	1914 May.
		$ c.	$ c.	$ c.	$ c.
106	Salaries and Expenses of General Officers	2,355 41	1,545 70	887 96	1,469 57
107	Salaries and Expenses of Clerks and Attendants	3,004 22	2,989 77	2,874 95	2,998 68
108	General Office Supplies and Expenses	408 49	460 83	159 24	620 73
109	Law Expenses	404 00	400 00	.....	400 00
110	Insurance	3,739 51	3,101 98	3,519 11	2,737 73
111	Relief Department Expenses	.....	.....	.....	.....
112	Pensions	.....	.....	.....	.....
113	Stationery and Printing	268 63	345 13	199 63	105 97
114	Other Expenses	10 00	75	40 00	23 77
115	General Administration Joint Tracks, Yards and Terminals—Dr.	.....	.....	.....	.....
116	General Administration Joint Tracks, Yards and Terminals—Cr.	Cr. 23 11	Cr. 41 02	Cr. 23 57	62 50
	Totals	10,167 15	8,803 14	7,657 32	8,293 95

Comparative Statement of Earnings and Expenditures by

No.	General Expenses.	1913 September.	1914 September.	1913 October.	1914 October.
		$ c.	$ c.	$ c.	$ c.
106	Salaries and Expenses of General Officers	1,187 62	2,472 29	931 64	1,338 15
107	Salaries and Expenses of Clerks and Attendants	3,011 27	3,138 72	2,017 04	3,187 23
108	General Office Supplies and Expenses	322 73	378 50	502 90	76 77
109	Law Expenses	322 62	415 95	411 35	385 00
110	Insurance	3,519 11	2,728 12	3,525 58	2,728 12
111	Relief Department Expenses	.....	.....	.....	.....
112	Pensions	.....	.....	.....	.....
113	Stationery and Printing	153 29	219 22	367 82	104 32
114	Other Expenses	1,006 68	55	156 80	28 28
115	General Administration Joint Tracks, Yards and Terminals—Dr.	.....	.....	.....	.....
116	General Administration Joint Tracks, Yards and Terminals—Cr.	Cr. 22 95	Cr. 67 84	Cr. 21 94	Cr. 70 27
	Totals	9,500 37	9,285 51	7,891 19	7,777 60

Months, November, 1913 to October, 1914---Continued.

1913 January.	1914 January,	1913 February.	1914 February.	1913 March.	1914 March.	No
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
2,500 75	1,046 03	1,151 17	1,356 36	1,116 58	2,326 98	106
3,237 12	3,599 30	2,979 23	3,123 67	2,783 67	3,078 24	107
409 36	601 53	650 60	540 11	566 71	679 19	108
407 36	417 00	400 00	400 00	400 00	413 09	109
3,315 55	2,778 45	3,375 04	2,754 18	3,393 53	2,781 27	110
.....	.....	.....	.....	.....	.....	111
.....	.....	.....	.....	.....	.....	112
159 38	503 33	194 38	136 26	284 35	371 37	113
120 00	20 00	25 00	.....	Cr. 49	.....	114
.....	.....	.....	.....	.....	.....	115
Cr. 22 63	Cr. 20 84	Cr. 22 06	Cr. 19 66	Cr. 23 20	Cr. 1,037 07	116
10,126 89	8,944 80	8,753 36	8,290 92	8,521 15	8,613 07	

Months November, 1912, to October, 1914---Continued.

1913 June.	1914 June.	1913 July.	1914 July.	1913 August.	1914 August.	No.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
1,175 78	2,517 96	1,125 90	1,346 68	2,291 24	1,591 03	106
2,926 04	3,157 18	2,945 13	2,953 54	2,736 60	3,146 25	107
343 29	767 43	395 42	524 90	460 30	411 18	108
401 00	405 00	400 00	401 00	400 00	400 00	109
3,523 31	2,728 12	3,519 11	2,729 35	3,550 83	2,734 40	110
.....	.....	.....	.....	.....	.....	111
.....	.....	.....	.....	.....	.....	112
138 97	134 00	163 91	13 00	404 88	215 40	113
101 50	.....	.....	.....	65 45	50 00	114
.....	.....	.....	.....	.....	.....	115
Cr. 22 93	Cr. 49 29	Cr. 23 33	Cr. 65 47	Cr. 23 63	Cr. 67 20	116
8,586 96	9,660 40	8,526 14	7,903 00	9,885 67	8,481 06	

Months, November, 1912, to October, 1914---Concluded.

1913 Total.	1914 Total.	Increase.	Decrease.	Net Increase.	Net Decrease.	No.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
19,174 09	20,529 41	1,355 32	.....	.....	.....	106
35,225 08	37,144 53	1,919 45	.....	.....	.....	107
4,721 94	6,164 41	1,442 47	.....	.....	.....	108
4,361 33	4,842 04	480 71	.....	.....	.....	109
39,071 90	34,840 96	.....	4,230 94	.....	.....	110
.....	.....	.....	.....	.....	.....	111
.....	.....	.....	.....	.....	.....	112
2,893 36	2,934 37	41 01	.....	.....	.....	113
1,595 82	123 35	.....	1,472 47	.....	.....	114
.....	.....	.....	.....	.....	.....	115
Cr. 284 92	Cr. 1,546 71	Cr. 1,261 79	.....	.....	.....	116
106,758 60	105,032 36	3,977 17	5,703 41	.....	1,726 24	

Statistics—Temiskaming and Northern Ontario Railway Commission

Comparative Passenger and Freight Statement

——	Passengers.	Revenue.
		$ c.
Number of passengers carried during year 1905.....	86,648	108,681 76
" " " " 1906.....	359,861	254,759 33
" " " " 1907.....	518,678	388,343 03
" " " " 1908.....	479,005	366,504 53
" " " " 1909.....	580,748	483,110 89
" " " " 1910.....	670,913	606,967 91
" " " " 1911.....	479,102	653,063 01
" " " " 1912.....	497,452	599,681 73
" " " " 1913.....	508,055	576,049 37
" " " " 1914.....	535,869	544,820 08
Totals.....	4,716,331	4,581,981 64

Number of passengers carried one (1) mile, period 1905 to 1914, inclusive 188,033,508

——	Tons.	Revenue.
		$ c.
Number of tons of freight carried during year 1905 ...	99,192	121,530 46
" " " " " 1906 ...	273,749	230,552 63
" " " " " 1907 ...	393,589	390,894 29
" " " " " 1908 ...	484,444	471,203 41
" " " " " 1909 ...	498,645	756,141 66
" " " " " 1910 ...	624,820	852,886 46
" " " " " 1911 ...	564,120	974,678 33
" " " " " 1912 ...	562,734	929,464 66
" " " " " 1913 ...	674,942	906,476 16
" " " " " 1914 ...	742,366	952,090 35
Totals.....	4,918,601	6,585,918 41

Number of tons f freight carried one (1) mile, period 1905 to 1914, inclusive 483,382,006

Power House at Charlton—Charlton Electric Light, Heat and Power Co.

Falls on Sunda Creek near Charlton.

TRAFFIC AND MILEAGE STATISTICS.

Passenger Traffic.

1. Total passengers carried earning revenue	535,869
2. Number of passengers carried one mile	22,471,533
3. Number of passengers carried one mile per mile of road	68,303
4. Average distance carried—miles	41.93
5. Total passenger revenue	$544,820 08
6. Average amount received from each passenger	$1 01
7. Average receipts per passenger per mile (cents)	2.42
8. Total passenger train service revenue	$621,014 55
9. Passenger service train revenue per mile of road	$1,881 07
10. Passenger service train revenue per train mile	$1 62

Freight Traffic.

11. Number of tons carried earning revenue	742,366
12. Number of tons carried one mile	86,295,945
13. Number of tons carried one mile per mile of road	262,298
14. Average distance haul of one ton—miles	116.24
15. Total freight revenue	$959,653 73
16. Average amount received for each ton	$1 29
17. Average amount received per ton per mile (cents)	1.12
18. Freight revenue per mile of road	$2,764 20
19. Freight revenue per train mile	$2 28

Total Traffic.

20. Operating revenue	$1,670,898 87
21. Operating revenue per mile of road	$5,061 10
22. Operating revenue per train mile	$2 07
23. Operating expenses	$1,468,574 23
24. Operating expenses per mile of road	$4,448 33
25. Operating expenses per train mile	$1 82
26. Net operating revenue	$202,324 64
27. Net operating revenue per mile of road	$612 84

Car Mileage.

28. Average number of passengers per car mile	10
29. Average number of passengers per train mile	49
30. Average number of passenger cars per train mile	4.87
31. Mileage of passenger cars	2,239,856
32. Mileage of loaded freight cars—north and east	3,036,177
33. Mileage of loaded freight cars—south and west	1,749,903
34. Mileage of empty freight cars—north and east	364,244
35. Mileage of empty freight cars—south and west	1,615,150
36. Average number of freight cars per train mile	17.13
37. Average number of loaded freight cars per train mile	11.44
38. Average number of empty freight cars per train mile	4.73
39. Average number of tons freight per train mile	206.32
40. Average number of tons freight per loaded car mile	18.03
41. Average mileage operated during year	329.

Train Mileage.

42. Mileage of revenue passenger trains	385,575
43. Mileage of revenue mixed trains	79,299
44. Mileage of revenue freight trains	338,973
45. Total revenue train mileage	803,847

Temiskaming and Northern Ontario Railway.

Statement of North Bound and South Bound—Tonnage and Tons One Mile, October 31st, 1914.

Month.	North Bound (Pounds)	South Bound (Pounds)	Total Tonnage (Pounds)	Tons, One Mile.
November 1913.....	62,747,169	37,678,399	100,425,568	6,252,881
December "	81,033,278	34,873,750	115,907,028	6,563,003
January 1914.....	57,671,460	69,421,780	127,093,240	7,057,831
February "	44,431,379	100,511,211	144,942,590	7,840,235
March "	59,294,954	133,459,780	192,754,734	11,396,120
April "	59,866,632	68,836,538	128,703,170	7,907,407
May "	66,635,758	51,226,831	117,862,589	6,580,695
June "	45,038,603	116,608,422	161,647,025	6,727,271
July "	52,367,293	59,392,246	111,759,539	6,872,635
August "	62,039,884	39,472,742	101,512,626	6,336,436
September "	52,513,566	34,507,808	87,021,374	5,809,604
October "	56,521,927	38,580,602	95,102,529	6,951,827
Totals.....	700,161,903	784,570,109	1,484,732,012	86,295,945

Temiskaming and Northern Ontario Railway,

FOREST PRODUCTS.

Statement of Tonnage, Tons one mile. Total Revenue, and Revenue per ton per mile, for 12 months November 1st, 1913, to October 31st, 1914, under various headings.

Description.	Gross Tonnage. Pounds.	Whole Tons.	Tons one mile.	Total Revenue.	Revenue per ton per mile in mills.	
					Cents.	Mills.
				$ c.		
Pulp	12,977,850	6,489	1,505,431	8,987 80	0	6
Lumber	152,557,867	76,279	7,837,403	81,422 54	1	0
Pulpwood.....	231,991,990	115,996	16,569,015	91,039 31	0	5
Poles	17,586,250	8,793	840,924	9,168 62	1	0
Piles	2,114,400	1,057	108,277	1,056 46	0	9
Slabwood.....	19,521,920	9,761	486,228	5,752 49	1	2
Shingles	130,300	65	5,555	102 07	1	8
Posts.....	2,648,000	1,324	152,645	1,167 05	0	7
Logs	202,507,074	101,254	2,082,752	23,136 58	1	1
Laths	495,200	248	6,684	144 15	2	1
Sawdust	334,200	167	1,051	75 00	7	1
Ties.....	88,534,970	44,267	5,973,783	41,972 93	0	7
Timber	866,500	433	22,857	423 52	1	8
	732,266,521	366,133	35,592,599	264,448 52	0	7

Freight Traffic Movement—Company's Material Excluded—Year Ending October 31st, 1914.

Commodities.	Freight originating on T. & N. O.	Received from other roads in Canada.	Received from other roads in U.S.	Total Freight.
	Whole Tons.	Whole Tons.	Whole Tons.	Whole Tons.
Products of Agriculture—				
Grain	1,253	5,003	.....	6,256
Other mill products	901	1,725	.....	2,626
Flour	728	5,995	11	6,734
Hay	3,405	10,245	22	13,672
Tobacco	.....	.....	.....	.....
Cotton	.....	.....	.....	.....
Fruit and Vegetables	1,383	5,817	16	7,216
Other products of Agriculture	.....	.....	.....	.....
Total	7,670	28,785	49	36,504
Products of Animals—				
Live Stock	1,060	1,304	.....	2,364
Dressed Meats	116	1,629	.....	1,745
Other packing house products	43	261	.....	304
Poultry, Game and Fish	.....	82	.....	82
Wool	.....	.....	.....	.....
Hides and Leather	.....	.....	.....	.....
Other products of Animals	49	232	.....	281
Total	1,268	3,508	.....	4,776
Products of Mines—				
Anthracite Coal	1,811	11,258	10,732	23,801
Bituminous Coal	16,059	27,139	58,051	101,249
Coke	121	185	802	1,108
Ores	46,217	1,683	.....	47,900
Stone, Sand and other like articles	41,947	2,516	68	44,531
Other Products of Mines	174	820	30	1,024
Total	106,329	43,601	69,683	219,613
Products of Forests—				
Wood Pulp	8,946	.....	.....	8,946
Lumber	236,959	4,078	331	241,368
Other Products of Forests	109,429	94	.....	109,523
Total	355,334	4,172	331	359,837
Manufactures—				
Petroleum and other Oils	504	2,751	.....	3,255
Sugar	.....	378	.....	378
Naval Stores	.....	.....	.....	.....
Iron, Pig and Bloom	82	280	22	384
Iron and Steel Rails	1,159	524	380	2,063
Other Castings and Machinery	3,583	12,290	757	16,630
Bar and Sheet Metal	265	289	46	600
Cement, Brick and Lime	4,584	18,513	132	23,229
Agricultural Implements	.....	39	.....	39
Wagons, Carriages, Tools, etc	173	129	12	314
Wines, Liquors and Beers	411	2,544	89	3,044
Household Goods and Furniture	321	139	.....	460
Other Manufactures	919	5,760	176	6,855
Total	12,001	43,636	1,614	57,251
Merchandise	24,435	32,140	878	57,453
Miscellaneous—				
Other Commodities not mentioned above	4,154	2,698	80	6,932
Totals Tonnage	511,191	158,540	72,635	742,366

Temiskaming and Northern Ontario Railway.

Statement of Passengers, Revenue, Passengers one Mile and Passenger Revenue per mile in mills, for 12 months November 1st, 1913, to October 31st, 1914, under each class of traffic.

Form of Ticket.	No. of Passengers.	Revenue.	Passengers One Mile.	Passenger Revenue per Mile.
		$ c.		c.
Ordinary	469,032	478,367 84	18,892,419	2.53
Commercial	20,927	39,347 55	1,711,664	2.29
Week End	26,780	14,807 75	863,941	1.71
Excursion Fares	11,760	15,435 29	886,009	1.74
Military	137	375 00	18,689	2.01
Market	4,361	988 88	62,153	1.59
Scholars	2,872	269 00	36,658	0.73
Total	535,869	549,591 31	22,471,533	2.44

TEMISKAMING AND NORTHERN ONTARIO RAILWAY.

Statement of Materials and Supplies on hand October 31st, 1914.

Shop Stock—North Bay.

Class No.	1. Air brake material	$1,070 70
"	2. Wheels	6,240 77
"	3. Bolts, nuts, etc.	2,357 19
"	4. Building material	685 87
"	5. Car fittings	8,639 82
"	6. Castings	7,688 09
"	7. Couplers and parts	1,863 41
"	8. Forgings	1,046 46
"	9. Telegraph material	637 18
"	10. Electrical material	1,588 17
"	11. Glass	502 70
"	12. Hardware	779 35
"	13. Brass	4,848 07
"	14. Lamps and fittings	428 90
"	15. Locomotive parts finished	5,153 54
"	16. Carpenter shop	7,396 80
"	17. Bridge and building	7,181 06
"	18. Metals	260 03
"	19. Miscellaneous	2,365 85
"	21. Water supplies	10 14
"	22. Paints, etc.	590 67
"	23. Pipes and fittings	3,370 60
"	26. Hose	1,026 07
"	28. Commissary	106 22
"	29. Springs	2,535 47
"	30. Iron and steel	2,923 26
"	31. Steam shovels and plow parts	471 63
"	32. Tools	1,571 72
"	33. Track material	16,830 48
	Total	$90,170 22

Timmins.

Class No.	1. Air brakes	$5 10
"	2. Wheels	.....
"	3. Bolts and nuts	4 12
"	5. Coach fittings	4 60
"	6. Castings	79 05
"	7. Couplers and parts	.....
"	8. Forgings	.....
"	9. Telegraph material	.....
"	10. Electrical material	4 18
"	11. Glass	1 12
"	12. Hardware	41
"	13. Brass	79 10
"	14. Lamps and fittings	14 52
"	15. Locomotive parts finished	93
"	18. Metals	.....
"	19. Miscellaneous	10 72
"	22. Paints, etc.	2 54
"	23. Pipe fittings	11 50
"	26. Hose	32 31
"	29. Springs	3 78
"	30. Iron	.....
"	32. Tools	6 80
	Total	$260 78

Englehart.

Class No.	1. Air brake	$26 73
"	2. Wheels	4,195 53
"	3. Bolts and nuts	223 02
"	5. Coach fittings	26 12
"	6. Castings	419 08
"	7. Couplers and parts	119 38
"	8. Forgings	52 74
"	9. Telegraph material	2 47
"	10. Electrical material	56 74
"	11. Glass	38 30
"	12. Hardware	11 80
"	13. Brass	75 15
"	14. Lamp and fittings	36 51
"	15. Locomotive parts finished	47 36
"	18. Metals	5 94
"	19. Miscellaneous	65 77
"	22. Paints, etc.	6 38
"	23. Pipe and fittings	187 32
"	26. Hose	142 02
"	29. Springs	171 18
"	30. Iron	21 38
"	32. Tools	16 79
	Total	$5,947 71

Cochrane.

Class No.	1. Air brake material	$8 61
"	2. Wheels	125 90
"	3. Bolts, nuts, etc.	102 61
"	5. Coach fittings	10 28
"	6. Castings	126 40
"	7. Couplers and parts	104 02
"	8. Forgings	36 59
"	10. Electrical material	14 10
"	11. Glass	11 53
"	12. Hardware	1 23

Cochrane.—Continued.

Class No. 13.	Brass	$20 75
" 14.	Lamps and fittings	11 72
" 15.	Locomotive parts finished	6 49
" 19.	Miscellaneous	36 36
" 22.	Paints, etc.	1 25
" 23.	Pipe fittings	33 47
" 26.	Hose	48 42
" 29.	Springs	11 29
" 30.	Iron	2 14
" 32.	Tools	8 25
	Total	$721 41

SUMMARY.

North Bay	$90,170 22
Englehart	5,947 71
Timmins	260 78
Cochrane	721 41
	$97,100 12
Less unvouchered material (see following)	2,434 78
	$94,665 34

TEMISKAMING AND NORTHERN ONTARIO RAILWAY.

Shop Stock—Unvouchered Material—October 31st, 1914.

Canadian Car Foundry Co.:	
20 S.C.B. 115 centre plates	$44 00
20 S.C.B. 117 carrier bars	47 20
H. H. Still Co.:	
76 flagstaffs	2 10
76 axe handles	.....
120 hammer handles	.....
48 hammer handles	.....
48 pick handles	40 94
General Supply Co.:	
1 pr. 5" pipe flanges	1 80
Griffin & Brinkertoff:	
3 pr. wheel truing B shoes	31 50
Canadian Fairbanks-Morse:	
Driving gear and pinions	19 80
Canadian Locomotive Co.:	
16 draw bars at $17.00 each	272 00
Canadian Iron Corporation:	
143 wheels	1,620 96
Canada Creosote Lumber Co.:	
Creosote lumber	354 48
Total	$2,434 78

Oil and Waste.

North Bay	$998 37	
Englehart	274 75	
Timmins	39 53	
Cochrane	244 47	
		$1,557 08

Ice.

North Bay, 353,600 cu. ft., 1,768 tons at 70c.	$1,237 60	
Englehart, 46 tons at 1.10	50 60	
Cochrane, 3 tons at 1.25	3 75	
		$1,291 95

Ties.

Nos. 1 and 2, 114,942 at 32½c.	$37,356 15	
Culls, 25,044 at 12c.	3,005 28	
		$40,361 43

Stationery.

North Bay	$4,229 45
Less unvouchered material	31 85
	$4,197 60

Unvouchered Material.

A. J. Parr 12 transfer cases	$2 00
W. V. Dawson, 1,000 form No. 717	8 25
W. V. Dawson, 1,000 form No. 766	8 25
Planet, 1,000 form No. 744	3 35
Despatch and Tribune, 1,000 form No. 1706	4 10
Planet, 1,000 form No. 1522	5 90
	$31 85

RAIL STOCK.

Rails, new, 80 lb.—4422 lin. ft. at $34.00 gross ton	$1,789 86	
60 lb.—29725 lin ft. at $34.00 gross ton	9,023 67	
No. 1. relay rail, 80lb.—41983 lin. ft. at $28.00 gross ton	13,994 33	
60 lb.—19177 lin. ft. at 28.00 gross ton	4,794 25	
No. 2 relay rail, 80 lb.—80845, 60 lb.—, 56 lb.— 601 lin. ft. at $24.00 gross ton	23,098 57	
	120 20	
No. 3 relay rail, 80 lb.—30477, 60 lb.— 132 lin. ft. at $16.00 gross ton	5,805 14	
	18 86	
Scrap, 80 lb.—4590, 60 lb.— 339, 56 lb.— lin. ft. at $10.00 gross ton	546 43	
	30 27	
		$59,221 58

Bituminous Coal.

North Bay Dump	9,456,600 lbs.
On cars	2,835,000 "
Widdifield	21,600 "
Tomiko	6,400 "
Temagami	34,100 "
Latchford	39,000 "
Cobalt	28,800 "
Liskeard	305,000 "
Elk Lake	50,000 "
Englehart	944,800 "
Matheson	54,900 "
Timmins	142,000 "
Iroquois Falls	134,900 "
Cochrane	600,000 "
Total	14,653,100 lbs.

Bituminous Coal—Continued.

Less coal issued, Cochrane, 68 tons	..... lbs.	
Less coal issued, Timmins, 33 tons	202,000	
14,451,100 lbs. at $4.20 per ton		$30,347 31
Cr. Bs. rebate file		3,000 00
		$27,347 31
Dr.—Duty on car No. 10150, car never received, file G-1359, claim registered but not received	$26 50	
Dr.—Overcharge in freight car No. 7159, file G-2430, claim registered but not received	55 88	
		82 38
Net value of coal on hand		$27,429 69

Hard Coal.

North Bay, 2,522 cu. ft.	118,666 lbs.
Freight shed	51,000 "
Widdifield	28,000 "
Tomiko	27,000 "
Temagami	47,500 "
Diver	27,600 "
Latchford	59,000 "
Cobalt	152,000 "
North Cobalt	39,000 "
Haileybury	139,400 "
New Liskeard	95,500 "
Uno Park	43,000 "
Earlton	48,000 "
Englehart	259,000 "
Matheson	68,000 "
Dane	26,500 "
Gillies Depot	37,000 "
Charlton	55,000 "
Thornloe	57,000 "
Heaslip	33,000 "
Porquois Jct.	49,300 "
Swastika	40,000 "
Redwater	28,000 "
Porcupine	40,000 "
Cochrane	205,000 "
Schumacher	77,000 "
Timmins	47,000 "
South Porcupine	78,700 "
Elk Lake	56,000 "
Total	2,032,166 lbs.
2,032,166 lbs. at $6.54 a ton	$6,645 18

SUMMARY.

Shop stock—North Bay	$90,170 22	
Shop stock—Timmins	260 78	
Shop stock—Englehart	5,947 71	
Shop stock—Cochrane	721 41	
	$97,100 12	
Less unvouchered material	2,434 78	
		$94,665 34

Summary—Continued.

Oil and waste stock		$1,557 08	
Ice stock		1,291 95	
Ties stock		40,361 43	
Stationery stock		4,197 60	
Rail stock		59,221 58	
Bituminous coal		27,429 69	
Anthracite coal		6,645 18	
Sundry car material	$34,883 47		
Less stores in transit	51 37		
		34,832 10	
			175,536 61
Total value			$270,201 95

Statement Showing Employees, Total Days Worked, Average Daily Compensation, Etc.

November 1st, 1913, to October 31st, 1914.

Class.	Number.	Total days worked.	Total compensation.	Average daily compensation.
			$ c.	$ c.
I. *General Offices*:				
1. General officers	6	2,190	15,790 00	7 21
2. Chief Clerks	5	1,825	7,070 00	3 87
3. Other Clerks	40	14,052	29,264 28	2 08
4. Stenographers and Typists.	12	4,054	7,670 57	1 89
5. Telegraph and telephone Operators				
6. Messengers and Attendants				
7. Other General Office Employees	6	2,357	6,487 48	2 75
Total	69	24,478	66,282 33	2 71
II. *Road*:				
11. Officers	7	2,744	14,503 57	5 29
12. Clerks	9	3,244	8,050 56	2 48
13. Shop foremen	1	309	1,079 25	3 49
14. Structural iron workers				
15. Machinists				
16. Masons and bricklayers				
17. Carpenters	29	9,334	26,819 66	2 87
18. Painters	5	1,081	2,894 78	2 68
19. Other M. W. S. shopmen				
20. Other skilled laborers	4	1,174	3,266 47	2 78
21. Section foremen	52	16,698	45,054 85	2 69
22. Watchmen and trackwalkers	2	893	2,232 70	2 50
23. Other sectionmen	233	73,077	138,172 90	1 89
24. Unskilled laborers				
25. All other M. W. S. employees	14	9,267	19,958 33	2 15
26. Foremen of construction gangs	16	5,206	16,335 51	3 14
27. Other men in construction gangs	211	64,416	119,979 70	1 86
Total	583	187,443	398,348 28	2 13
III. *Equipment*:				
31. Officers	1	365	2,090 00	5 73
32. Clerks and attendants	6	1,887	4,930 85	2 61
33. Shop foremen	6	2,007	7,308 35	3 64
34. Machinists	20	5,971	22,099 68	3 70
35. Carpenters	19	5,353	16,462 20	3 08
36. Painters and upholsterers.	12	4,008	10,399 85	2 59
37. Other shopmen	73	24,355	56,257 54	2 31
38. Car inspectors	9	3,335	8,826 95	2 65
39. Watchmen				
40. All other M. E. employees.	29	7,119	17,550 05	2 47
Total	175	54,400	145,925 47	2 68
IV. *Traffic*:				
51. Officers	1	365	2,260 00	6 19
52. Clerks and attendants	10	3,653	6,842 72	1 87
53. Travelling solicitors				
54. Employees in outside agencies				
55. All other traffic employees				
Total	11	4,018	9,102 72	2 27

Statement Showing Employees, Total Days Worked, Average Daily Compensation, Etc.—Continued.

November 1st, 1913, to October 31st, 1914.

Class.	No.	Total. days worked.	Total compensation.	Average daily compensation.
V. *Transportation*:				
71. Officers	3	1,104	6,959 35	6 30
72. Clerks and attendants	6	2,405	4,515 78	1 88
73. Despatchers	4	1,724	8,824 44	5 12
74. Station agents	28	10,968	35,020 66	3 19
75. Operators not agents	22	8,817	23,850 47	2 71
76. Other station employees	111	40,881	73,542 08	1 80
77. Yardmasters & yard clerks	18	5,839	11,171 67	1 91
78. Yard enginemen	8	5,426	19,327 65	3 56
79. Yard conductors and brakemen	12	7,991	28,903 33	3 62
80. Yard switchmen	.....	.....	.....	.....
81. Other yard employees	.....	.....	.....	.....
82. Enginehouse employees	26	12,551	27,399 96	2 18
83. Road enginemen and motormen	46	23,268	87,244 30	3 75
84. Passenger conductors	5	4,145	12,296 22	2 97
85. Freight conductors	11	6,791	27,597 71	4 06
86. Other road trainmen	45	24,650	58,216 92	2 36
87. Operators, interlockers and signals	.....	.....	.....	.....
88. Crossing flagmen and gatemen	.....	.....	.....	.....
89. Drawbridge operators	.....	.....	.....	.....
90. Employees on floating equipment	.....	.....	.....	.....
91. Employees in express service	.....	.....	.....	.....
92. Employees in claim dept.	.....	.....	.....	.....
93. All other trans. employees	36	11,576	22,215 11	1 92
Total	381	168,136	447,085 65	2 66
Grand Total	1,219	438,475	1,066,744 45	2 43
Outside operations	14	3,654	6,892 61	1 89
Construction	161	17,616	39,229 67	2 23
Total payroll	1,394	459,745	1,112,866 73	2 42

Equipment owned by Temiskaming and Northern Ontario Railway October 31st, 1914.

—	Total authorized equipment.	Available for service.	Destroyed or transferred to other classes.	Capacity. Tractive Power.	Total Valuation.
STEAM LOCOMOTIVES.					$ c.
Class A 3	4	4	.....	112,640	.....
Class B 4	4	4	170	170,000	.....
Class C 2	2	2	.....	26,488	.....
Class C 3	30	29	1	680,746	.....
Class F 3	4	4	.....	121,600	.....
Totals	44	43	1	1,111,474	$742,275 72
PASSENGER EQUIPMENT.					
First Class Coaches (wooden)	14	14	.....	.....	.....
" " " (steel)	3	3	.....	.....	.....
Second " " (wooden)	21	15	6	.....	.....
" " " (steel)	2	2	.....	.....	.....
Combination " (wooden)	2	2	.....	.....	.....
" " (steel)	3	3	.....	.....	.....
Parlor-Cafe	3	3	.....	.....	.....
Baggage and Express (wooden)	7	5	2	.....	.....
" " (steel)	2	2	.....	.....	.....
Mail and Express (wooden)	6	5	1	.....	.....
" " (steel)	3	3	.....	.....	.....
Private	3	3	.....	.....	.....
Totals	69	60	9	.....	702,041 10
FREIGHT EQUIPMENT.					
Box	150	146	4	.....	.....
Stock	10	10	.....	.....	.....
Vans	24	23	1	.....	.....
Flats	500	463	37	.....	.....
Totals	684	642	42	.....	616,369 89
MAINTENANCE OF WAY AND STRUCTURES EQUIPMENT.					
Pile Driver	1	1	.....	.....	.....
Snow Plows	4	3	1	.....	.....
Flangers	3	3	.....	.....	.....
Steam Shovels	3	3	.....	.....	.....
Wrecking Cranes	2	2	.....	.....	.....
Auxiliaries Complete	2	2	.....	.....	.....
Road Cabin Cars	2	2	.....	.....	.....
Lidgerwood Unloaders	3	3	.....	.....	.....
Side Ballast Plows	6	6	.....	.....	.....
Centre Ballast Plows	3	3	.....	.....	.....
Jordan Ballast Spreader	1	1	.....	.....	.....
Pile Driver Tank Car	1	1	.....	.....	.....
Mahoney Ditching Machine	1	1	.....	.....	.....
Centre Ballast Spreader	1	1	.....	.....	.....
American Railroad Ditcher	1	1	.....	.....	.....
Cinder Cars, Steel	12	12	.....	.....	.....
Hart Convertible Cars	17	17	.....	.....	.....
Exhibition Car	1	1	.....	.....	.....
Fish Car	1	1	.....	.....	.....
Boarding Cars	8	8	.....	.....	.....
Hand Cars	120	114	6	.....	.....
Push Cars	86	77	9	.....	.....
Motor Cars	3	3	.....	.....	.....
Velocipedes	20	6	14	.....	166,874 56
Totals	302	272	30	.....	$2,227,561 27

STATEMENT OF LAND PURCHASED BY T. & N. O. RAILWAY.

November 1st, 1913 to October 31st, 1914.

Treasurer of Ontario, Toronto, Ont.:	
Right of Way, Porcupine Branch, 327.25 acres	
Right of Way, Iroquois Falls Branch, 43.6 acres	
Right of Way, Elk Lake Branch, 295.42 acres	$666 27
Hugh Reilly, Ottawa, Ont.	
South ½, Lot 1, Con. 6, Barber, 6.1 acres	160 00
J. L. Johnston, Ottawa, Ont.	
South ½, Lot 2, Con. 6, Barber, 6.06 acres	160 00
Treasurer of Ontario, Toronto, Ont.:	
North ½, Lot 7, Con. 6, Henwood, 57.3 acres	
North ½, Lot 6, Con. 6, Henwood, 75.8 acres	133 10
Jos. Perault, Nushka, Ont.:	
South ½, Lot 8, Con. 6, Taylor, .66 acres.....	132 00
Jos. Perault, Nushka, Ont.:	
South ½, Lot 9, Con. 6, Taylor, 32 acres	64 00
W. J. Speller, Homer, Ont.:	
North ½, Lot 6, Con. 4, Taylor, 3.27 acres	200 00
Edward O'Leary, Porcupine, Ont.:	
Lot for station grounds, New Liskeard, houses and lot 1 1-5 acres.....	2,200 00
Treasurer of Ontario, Toronto, Ont.:	
North ½, Lot 11, Con. 2, Carr, .86 acres	
North ½, Lot 12, Con. 2, Carr, 1.09 acres	1 95
Treasurer of Ontario, Toronto, Ont.:	
Extra land for Wahtaybeag station grounds, .81 acres.....	81
G. W. Jardine, Thornloe, Ont.:	
South ½, Lot 1, Con. 1, Armstrong, 2.5 acres	162 00
Treasurer of Ontario, Toronto, Ont.:	
North ½, Lot 6, Con. 4, Taylor. 3.27 acres	3 27
Treasurer of Ontario, Toronto, Ont.:	
South ½, Lot 9, Con. 6, Taylor, .32 acres.....	
South ½, Lot 8, Con. 6, Taylor, .66 acres.....	1 00
J. C. Bogart, Couttsville, Ont.:	
South ½, Lot 1, Con. 1, Armstrong, 1.1 acres	220 80
Timmins Townsite Co., Timmins, Ont.:	
Lot 894, Timmins Townsite, 1 full Lot, 33 x 100	350 00
	$4,455 20

TOWNSITES ACCOUNTS

Statement of Lots Sold—Townsites—Nov. 1st, 1913, to Oct. 31st, 1914.

Townsite.	Lots sold.	Amount paid.	Balance due.
		$ c.	$ c.
Latchford	3.44 acres	1,376 00	.....
Cobalt	1	250 00	550 00
Englehart	18 and 15 acres and $\frac{3}{5}$ acres	990 00	2,815 00
Dane	6	150 00	225 00
Matheson	14	343 75	1,051 25
Matheson Sub-Div	28	637 50	1,477 50
Monteith	2	63 75	41 25
Porquis Junction	36	960 00	3,925 00
Cochrane	6	450 00	950 00
Cochrane Annex	11	940 00	260 00
Total	122	6,160 00	11,295 00

STATEMENT RECEIPTS AND EXPENDITURES—TOWNSITE ACCOUNT.

November 1st, 1913, to October 31st, 1914.

Debit.		Credit.	
Cash in Bank of Ottawa, Nov. 1st, 1913	$59,155 56	Bank balance, October 31st, 1914	$72,341 03
Cash paid on lots sold	6,161 00		
Deferred payments on lots sold previous to Nov. 1st, 1913	5,806 70		
Interest on deferred payment	648 68		
Interest on deposits	569 09		
	$72,341 03		$72,341 03

TOWNSITE ACCOUNTS, BALANCE OCTOBER 31st, 1914, FOR ANNUAL REPORT.

Payments Made on Lots Sold November, 1st, 1913, to October 31st 1914.

Cochrane Townsite	$450 00
Cochrane Annex	940 00
Porquis Junction Townsite	960 00
Monteith Townsite	63 75
Dane Townsite	150 00
Matheson Townsite	343 75
Matheson New Sub-division	637 50
Englehart Townsite	990 00
Cobalt Townsite	250 00
Latchford Townsite	1,376 00

Deferred Payments Made on Lots Sold Previous to November 1st, 1913.

Cochrane Townsite	$2,750 00
Cochrane Townsite, interest	371 16
Cochrane New Sub-division	91 65
Cochrane New Sub-division, interest	12 89
Cochrane Annex	937 50
Cochrane Annex, interest	62 50
Porquis Junction Townsite	765 00
Porquis Junction Townsite, interest	33 46
Monteith Townsite	112 50

TOWNSITE ACCOUNTS.—*Continued.*

Monteith Townsite, interest	$12 97	
Matheson Townsite	327 50	
Matheson Townsite, interest	24 12	
Englehart Townsite	214 15	
Englehart Townsite, interest	19 68	
Cobalt New Sub-division	608 40	
Cobalt New Sub-division, interest	111 90	
Bank interest on deposits	569 09	
Bank balance, October 31st, 1913	59,155 56	
		$72,341 03
Bank balance, October 31st, 1914		$72,341 03

Statement of Wages Paid Employees Year Ended October 31st, 1914.

Office of Secretary-Treasurer.

McGee, A. J.	Secretary-Treasurer	$3,700 00	
Odlum, A. B.	Stenographer	830 00	
Downing, A.	"	830 00	
McNeice, H.	"	650 00	
Moore, E.	"	165 00	
Southby, G.	Filing Clerk	55 00	
Whiteside, W.	Mail Clerk	350 00	
			$6,580 00

Office of Accountant.

Macdonald, H. F.	Accountant	$1,970 00	
Hamilton, D.	Chief Clerk	1,035 00	
May, E. N.	Clerk	1,140 00	
Saunderson, G. S.	"	795 00	
Mack, R. F.	"	770 00	
Jones, R. V.	"	650 00	
Pratt, A. B.	"	1,800 00	
Hanan, H. P.	"	720 00	
Robinson, S.	Stenographer	650 00	
Hicks, A. M.	"	740 00	
			$10,270 00

Office of Mining Engineer, Cobalt.

Cole, A. A.	Mining Engineer	$3,300 00	
Tittensor, E.	Stenographer	780 00	
			$4,080 00

Office of Superintendent of Traffic.

Griffin, W. A.	Superintendent of Traffic	$3,100 00	
Faught, S. J.	Chief Clerk	1,190 00	
Brown, C. F.	Stenographer	770 00	
Newell, K.	"	319 99	
Giroux, C.	Clerk	638 21	
Beaton, W.	Office Boy	380 00	
Keats, H.	Stenographer	8 33	
Bousquet, W.	Office Boy	25 00	
Elston, F.	Clerk	11 79	
Newell, M.	Stenographer	355 97	
Flannery, W. M.	Office Boy	0 66	
McKenzie, G. E.	Stenographer	199 03	
Edey, J.	Office Boy	9 19	
			$7,014 17

Paymaster's Office.

Ferguson, C. L.	Paymaster	$2,070 00	
Cousineau, L. J.	Clerk	820 00	
			$2,890 00

Traffic Accountant's Office.

Mitchell, A. R. H.	Traffic Accountant	$2,200 00	
Willis, J. B.	Chief Clerk	1,250 00	
Milne, W. B.	Clerk	366 33	
McCausland, J.	"	650 00	
Brennan, J. B.	"	770 00	
Peel, R.	"	640 07	
Brockway, H.	"	780 00	
Lavery, T. H.	"	770 00	
Keelar, S.	"	710 00	
Doidge, M.	"	475 48	
Clarke, E.	"	17 50	
Ansell, H. V.	Stenographer	443 33	
McKeown, G.	Clerk	464 16	
Salmon, A.	"	386 13	
Knight, J. R.	"	48 33	
King, R.	Stenographer	592 00	
Gregory, K. E.	"	430 32	
Smith, G.	Clerk	410 00	
Oullette, T.	Office Boy	350 00	
Mitchell, A. B.	Clerk	262 90	
Pratt, J. J.	"	251 61	
Johnson, H.	"	270 67	
McEdward, W.	"	270 97	
Campbell, M.	"	221 94	
Bertrim, E. D.	"	112 90	
Cartmill, G. H.	"	160 65	
Murphy, C. W.	"	129 19	
Brockway, E.	"	90 32	
Fitzgerald, H.	Stenographer	124 19	
			$13,648 99

Travelling Auditors.

Maund, W. H.	Travelling Auditor	$1,730 00	
McGee, H. H.	"	1,370 00	
			$3,100 00

Superintendents' Accountant's Office.

Gracey, T. J.	Superintendent's Accountant	$1,470 00	
Bain, J.	Clerk	734 35	
Sherman, E. L.	"	600 00	
McIntosh, R.	"	600 00	
Hansford, E. M.	Stenographer	495 00	
Cavanagh, H. W.	Clerk	480 00	
Bousquet, T. W.	"	171 29	
Nidd, H.	Stenographer	1 67	
Jessup, A. L.	"	44 00	
			$4,596 31

Land Department.

Lee, G. W.	General Agent	$2,250 00	
Graham, G.	Clerk	540 00	
Bauldry, W. J.	Townsite Inspector	1,200 00	
Townsite Laborers		391 45	
Gregory, T.	Clerk	168 39	
			$4,549 84

Freight and Passenger Department.

Parr, A. J.	G. F. & P. A.	$2,260 00	
Harper, W. J.	Chief Clerk	1,510 00	
Thomas, D. R.	Clerk	950 00	
Jones, W.	"	660 00	
Kelly, T.	"	540 00	
Gregoire, T.	"	17 50	
Milligan, M.	Stenographer	540 00	
Banks, E. C.	Clerk	1,020 00	
McLeod, R.	"	360 00	
Crummy, M.	Stenographer	480 00	
Gauthier, A.	Office Boy	300 00	
Anderson, F. R.	Stenographer	312 86	
Casey, M.	"	152 36	
			$9,102 72

Train Dispatchers.

Lamb, R. L.	Chief Dispatcher	$2,126 29	
Chatterton, C. D.	Dispatcher	2,183 81	
Workman, R.	"	2,188 25	
Smith, R. B.	"	1,715 31	
Trowhill, R. T.	Dispatcher and Operator	1,047 26	
LeGallais, F. G.	Operator	704 49	
Allen, T. F.	"	65 88	
			$10,031 29

Trainmaster's Office.

Ryan, S. H.	Trainmaster	$2,030 00	
Lamb, R. L.	"	49 35	
Gregory, T.	Stenographer	451 61	
Gregory, K. E.	"	150 00	
			$2,680 96

Purchasing and Stores Department.

Graham, W. A.	P. A. and Storekeeper	$2,370 00	
Alford, G. B.	Chief Clerk	1,245 00	
Freeman, A.	Clerk	1,070 00	
Ansell, J.	"	274 45	
Tarsey, S. G.	"	794 00	
Valliant, E. R.	"	714 00	
Donegan, E. J.	Stenographer	680 00	
Sale, A.	Clerk	730 00	
Sale, T. M.	Storeman	1,245 00	
Dignan, J. C.	"	750 00	
Depledge, F.	"	750 00	
Daly, G. L.	"	620 00	
Bigg, J. E.	"	600 00	
Cavanagh, A.	Tie Inspector	1,085 98	
English, W.	"	965 50	
Watkins, W.	Storekeeper, Englehart	1,046 00	
			$14,939 93

Official Cars.

Brewster, L.	Porter	$780 00	
Thomas, A. H.	"	6 00	
Mahon, J.	"	13 55	
Vlad, J.	"	12 00	
Edwards, R.	"	1 45	
West, S.	"	18 57	
Brown, E.	"	4 50	
Gawin, A.	"	13 75	
Baker, R.	"	23 79	
Collins, M. E.	"	14 51	
Brebner, J.	"	12 09	
Clarke, C. B.	"	2 33	
Cormier, C.	"	11 25	
Tibbs, C. F.	"	12 09	
			$925 88

Janitor, Office Building.

Hume, J.	Janitor	$840 00	
Colbon, W.	"	32 67	
			$872 67

Constables.

Swan, R. C.	Constable	$950 00	
Thomas, R. M.	"	34 47	
Sweetman, M.	"	130 00	
Riddler, C.	"	174 03	
			$1,288 50

Freight Office, North Bay.

Baker, C. O.	Agent	$1,680 00	
Teskey, H. W.	Chief Clerk	1,081 66	
King, A. T.	Cashier	840 00	
Knapp, E. A.	Clerk	780 00	
Forrest, W.	"	780 00	
Sullivan, M.	"	720 00	
Fishlock, A. F.	"	720 00	
Gerrie, M.	"	660 00	
Kemp, G.	"	660 00	
Nugent, P.	Stenographer	621 31	
Gibson, R.	Clerk	600 00	
Forrest, W.	"	360 00	
Saunders, L.	Messenger	125 00	
Dickey, E.	"	2 01	
Lapointe, H.	"	175 00	
Keats, H.	Stenographer	48 65	
			$9,853 63

Freight Shed, North Bay.

Sharvell, F. W.	Foreman	$1,000 00	
Ashford, S. A.	Clerk	723 80	
Dugard, W.	Checker	724 75	
Smith, A.	"	684 39	
Webber, S.	"	594 00	
James, F.	"	202 80	
Griffiths, G.	"	686 28	
Moulder, T.	"	690 33	
White, R.	"	540 98	
Rowlands, W.	"	190 79	
Rogers, A. E.	"	620 00	
Pratt, C.	"	55 00	
Freight Truckers and Porters		14,792 69	
			$21,505 81

Yard Office, North Bay.

Ness, C.	Yardmaster	$1,582 77	
McKerrow, J. O.	"	1,561 30	
Richmond, J. N.	"	148 85	
Roberts, C. A.	Operator	1,183 28	
Dwyer, J. H.	"	1,184 37	
Cattley, B.	"	150 64	
LeGallais, F. G.	"	441 03	
Brown, A. W.	"	8 03	
Trowhill, R.	"	326 11	
Duncan, C. E.	"	373 29	
Dudley, H. A.	"	53 95	
Thompson, W.	Chief Clerk	900 00	
Scott, O. C.	Clerk	565 08	
Wright, W. T.	Checker	720 00	

Yard Office, North Bay.—Continued.

Elston, F.	Clerk	$189 28	
Wissler, J. S.	"	704 80	
Duncan, G.	"	680 00	
Nerate, A.	"	244 35	
Elliotte, J.	"	75 80	
Buckmaster, W. J.	Checker	524 66	
Woodwards, F.	"	21 23	
Hoover, R. R.	"	322 07	
LaPointe, H.	Messenger	98 38	
McGirr, N.	"	3 33	
Fetterley, U.	"	215 56	
Archambault, O.	"	32 44	
Edwards, R.	Callboy	344 51	
Fisher, G.	"	9 00	
Campbell, K.	"	347 65	
Stamper, S.	Stockman	280 96	
Bird, W. A.	Heaterman	622 92	
Reddaway, W.	"	501 04	
Turner, W.	"	42 46	
Howard, E.	Checker	525 35	
VanReith, A.	Janitor	540 00	
Robinson, N.	Sanitary Work	40 00	
Peters, F.	Heaterman	181 39	
Giroux, C. A.	Clerk	11 78	
Saunders, L.	"	320 00	
Knight, L .W.	Scaleman	9 88	
Gartner, H.	"	365 69	
Webber, W. F.	Checker	96 30	
Bousquet, T. W.	Messenger	29 78	
Elston, F.	Scaleman	287 90	
Chamberlain, S.	Checker	234 67	
Daly, L.	Messenger	195 11	
Prou, A.	Signalman	245 66	
Cramp, A.	"	245 66	
Natook, E.	Sanitary Work	4 53	
Veshinskin, L.	"	4 53	
Edey, J. E.	Messenger	38 32	
Fetterley, H.	Callboy	75 84	
Brown, D.	Messenger	20 56	
Mallory, W.	"	40	
Doughty, A.	Iceman	115 18	
Barnhardt, W.	Messenger	80	
McGillis, A.	"	13 75	
			$18,062 23

Widdifield Station.

Picard, J. W.	Agent and Operator	$957 82	
Bates, G.	"	40 64	
			$998 46

Tomiko Station.

Price, J. T.	Agent	$169 80	
Ackerman, T. R.	"	520 28	
Smith, A. J.	"	301 76	
Hainer, J. R.	"	65 49	
Shane, J. T.	Operator	38 34	
Clark, M. G.	"	90 27	
Ackerman, T. R.	"	210 75	
Varrette, E. J.	Agent and Operator	109 17	
Smith, A. J.	"	421 66	
Marshall, C.	Operator	13 66	
Vanmeer, E. W. A.	"	53 77	
Dudley, H. A.	"	31 41	
Jardine, A.	"	12 94	
Dumais, J. H.	"	42 16	
			$2,081 46

Diver Station.

Baker, T. J.	Agent and Operator	$988 13	
Smith, A. J.	"	51 04	
			$1,039 17

Timagami Station.

Grant, W. A.	Agent and Operator	$75 33	
Doherty, M. R.	"	48 99	
Allan, J. D.	"	1,193 28	
Marshall, C.	"	9 90	
Walker, J.	"	84 54	
York, W. H.	Clerk	303 00	
			$1,715 04

Latchford Station.

Richardson, R.	Agent and Operator	$1,483 47	
Brasher, S. M.	Operator	13 82	
Pelkie, J. A.	"	956 51	
Murphy, E. M.	"	39 68	
Donnelly, P. T.	"	12 27	
Bates, G. H.	"	4 39	
Kett, W. J.	Baggageman	1 77	
			$2,511 91

Gillies Depot.

Ritza, A. C.	Agent and Operator	$433 20	
Marshall, C	"	90 42	
Brasher, S. M.	"	194 18	
Hawkins, J. A.	"	223 19	
			$940 99

Kerr Lake Station.

Carter, W.	Clerk	$522 00	
Way, D. H.	Sanitary Work	5 00	
			$527 00

Commercial Telegraph Office, Cobalt.

Way, D. H.	Manager	$180 00	
Grace, P. W.	Operator	970 06	
Bunyan, M.	Accountant	755 50	
Anson, T.	Messenger	177 26	
Copps, H.	"	119 07	
Downward, F.	"	124 67	
Jardine, A.	Operator	26 75	
Allen, T. F.	"	16 80	
			$2,370 11

Cobalt Station.

Way, D. H.	Agent	$1,620 00
Maund, F. C.	Chief Clerk	960 00
Nixon, E.	Accountant	890 00
Skillicorn, H.	Cashier	840 00
Kilpatrick, W. A.	Clerk	682 00
Stuckey, H.	"	720 00
Clarke, S.	"	475 00
Lyons, E.	"	25 66
Earle, W. R.	Operator and Ticket Clerk	1,478 37
McDonald, A.	" "	41 45
Varrette, E. J.	" "	15 86
Whitehead, H.	Baggageman	820 73
Toohey, J.	Constable	237 68
Bezeau, A.	"	218 20

Cobalt Station.—Continued.

Bartlett, M.	Janitress	$480 00	
McKay, D.	Shed Foreman	900 00	
Monkhouse, T.	Checker	670 00	
Bywaters, H.	"	720 00	
Bell, R.	"	720 00	
Adams, F.	"	275 00	
Gilmour, F.	"	27 50	
Gray, R.	"	82 20	
Ratchford, A.	"	69 93	
Sweet, M.	Clerk	260 64	
Mercier, A.	Sanitary Work	72 00	
O'Kelly, A.	Stenographer	720 00	
Dodds, R.	Checker	546 90	
Simms, J.	Clerk	110 00	
Anson, T.	Checker	140 00	
Lee, C.	"	14 66	
Woodend, R.	"	180 54	
Slack, T.	"	56 58	
Stringer, J. W.	Clerk	98 06	
Kelly, S.	Porter	81 60	
Davis, A. B.	Constable	350 00	
Titensor, M. K.	Trucker	20 16	
Downward, F.	"	90 00	
Stuckey, E. B.	Clerk	129 19	
Jardine, A.	Operator	10 97	
Jones, B. E.	Constable	142 73	
Skelton, F. W.	"	198 06	
Scmallback, J. H.	Operator	135 78	
			$16,327 50

North Cobalt Station.

Gibbon, D.	Agent and Operator	$1,002 14	
Brasher, S. M.	"	43 20	
O'Brien, J.	Sanitary Work	24 00	
			$1,069 34

Haileybury Station.

Shibley, J. H.	Agent	$1,594 22	
Trousdale, F. A.	Operator and Ticket Clerk	1,082 07	
Scmallback, J. H.	" "	77 06	
Copner, J. M.	Chief Clerk	196 11	
Hunter, I.	"	658 62	
Sears, W. G.	Baggageman	75 48	
Duffett, I. S.	Shed Foreman	740 00	
Harris, J. B.	Clerk	686 00	
Stewart, J.	Janitress	271 13	
Childs, J.	Shedman	116 13	
White, G.	Baggageman	708 71	
Stewart, H.	Shedman	127 25	
Barber, G.	"	101 61	
Shibley, E.	Clerk,	235 16	
Spence, C. M.	Cleaning	15 00	
			$6,684 55

New Liskeard Station.

Goodman, E. M.	Agent	$1,620 00	
Copner, J. M.	Cashier	336 45	
Allan, E. M.	Clerk	188 57	
Herron, F.	Baggageman	674 12	
Herron, S.	Shed Foreman	1 83	
Craig, F.	Janitor	96 41	
Brown, R.	Checker	573 35	
Wilson, S.	"	112 90	
McKee, J.	Shed Foreman	249 55	
Craig, F.	Clerk	439 54	
Ramsay, W.	"	479 52	

New Liskeard Station.—Continued.

Haggart, E. W.	Janitor	$270 96	
Peel, R.	Cashier	25 36	
Milne, W. B.	"	473 67	
McDonald, A.	Operator	57 33	
Varrette, E. J.	"	68 87	
Murphy, E.	"	435 02	
Cattley, B.	"	359 57	
Holt, F. G.	"	942 27	
Marshall, C.	"	67 13	
Barnett, J. H.	"	159 75	
Hainer, J. R.	"	19 85	
			$7,652 02

Uno Park Station.

Caldwell, W. F.	Agent	$84 08	
Doherty, M. R.	"	846 22	
Silver, R.	Sanitary Work	4 00	
Brasher, S. M.	Agent	15 60	
			$949 90

Thornloe Station.

Allan, J. D.	Agent and Operator	$84 08	
Caldwell, W. H.	"	913 18	
Brasher, S. M.	"	46 04	
			$1,043 30

Earlton Station.

Buchanan, L.	Agent	$1,223 26	
Brown, A. W.	"	112 30	
Mortson, N.	Clerk	553 76	
Marshall, C.	Operator	10 93	
Workman, W. F.	Clerk	12 90	
Brasher, S. M.	Operator	38 33	
			$1,951 48

Elk Lake Station.

Belanger, O.	Agent	$1,439 04	
Caghill, A.	Clerk	253 33	
Stanisky, Mrs. T.	Cleaning	60 00	
McCauley, W.	"	3 80	
Lacy, C.	"	1 90	
Stanisky, T.	Sanitary Work	19 00	
Aubert, B.	Checker	350 00	
			$2,127 07

Heaslip Station.

Chouinard, J.	Agent and Operator	$913 31	
Brasher, S. M.	"	45 29	
			$958 60

Elk Lake-Gowganda Telephone.

Belanger, O.	Manager	$135 00	
Tremblay, E.	Operator	315 00	
Taylor, E. L.	Agent, Gowganda	360 00	
			$810 00

Englehart Station.

Murray, F. J.	Agent	$1,258 79	
Jones, C. S.	"	144 12	
Brasher, S. M.	Operator	38 23	
Borthwick, T. D.	"	1,379 01	
Faught, T. J.	"	79 20	
Varrette, E. J.	"	53 07	
Ackerman, T. R.	"	81 80	
Bruce, G.	"	1,082 30	
McDonald, A.	"	59 57	
Ollenbittle, W. A.	"	5 93	
Jones, A. S.	Clerk	670 41	
Errett, F.	"	627 04	
Nudds, T.	"	613 55	
Tibbles, J.	"	568 72	
Millman, A. J.	"	300 00	
Gray, C. S.	Shed Foreman	708 06	
Gray, E.	Shedman	561 36	
Merritt, L.	"	436 98	
Silver, L.	Sanitary Work	165 00	
Hoskens, A.	Trucker	72 15	
French, H.	"	4 60	
Rhodeman, W.	"	4 60	
Smith, E.	Checker	15 83	
Vreeland, E.	"	17 05	
Bates, G. H.	Operator	16 38	
Soper, W.	Trucker	59 25	
McDonald, J. J.	Constable	114 39	
Harris, G.	Trucker	20 58	
			$9,157 97

Charlton Station.

Brocklebank, C. H.	Agent	$1,214 13	
Ackerman, T. R.	"	3 17	
Varrette, E. J.	"	9 19	
Middleton, A.	Clerk	93 55	
Hill, A.	"	75 64	
			$1,395 68

Dane Station.

Deagle, L. A.	Agent and Operator	$540 25	
Varrette, E. J.	"	317 55	
Brasher, S. M.	"	78 38	
Marshall, C.	"	159 71	
			$1,095 89

Swastika Station.

Brennan, W. W.	Agent and Operator	$1,047 38	
Marshall, C.	"	70 79	
Dumais, J. H.	Operator	17 87	
Vanmeer, E. W.	"	24 84	
Spiers, C. S.	Clerk	150 00	
Furlong, A.	Telephone Operator	480 00	
Brunelli, A.	Sanitary Work	6 00	
Bowman, J.	Constable	188 38	
Brown, H. G.	Operator	94 34	
Shane, J. T.	Clerk	41 93	
			$2,121 53

Matheson Station.

Cullen, H. B.	Agent and Operator	$333 29	
Varrette, E. J.	"	170 22	
McDonald, A.	"	581 76	
Ackerman, T. R.	"	339 37	

Matheson Station.—Continued.

Burton, W. A.	Clerk	$307 09	
Burton, G.	Water for Station	7 50	
Stack, J.	Clerk	41 77	
Holland, V. G.	"	100 00	
Brown, Mrs.	Cleaning	10 00	
			$1,891 00

Porquis Junction.

Sherlock, G. L.	Agent	$850 05	
Walker, J.	"	650 25	
Davidson, J.	Constable	55 64	
Hopkins, N.	Telephone Operator	132 90	
Brown, A. W.	Operator	15 87	
Vallierre, J. L.	"	52 13	
Faught, T. J.	"	13 46	
Brown, H. G.	"	58 13	
Ollenbillte, F.	"	30 71	
McDougall, W.	Clerk	432 66	
Johnson, J.	Baggageman	339 83	
Thompson, E.	Clerk	363 71	
Knapp, F.	"	350 17	
Johnson, Mrs. J.	Janitress	27 00	
Lake, F.	Sanitary Work	5 00	
Brasher, S. M.	Operator	24 90	
Gregor, L. D.	Clerk	55 00	
			$3,457 41

Iroquois Falls Station.

Sherlock, G. L.	Agent	$417 50	
Biers, T.	Checker	135 47	
Mitchell, A. B.	Clerk	242 66	
Jardine, A.	Operator	167 04	
Hunter, I.	Clerk	36 95	
Allen, T. F.	Operator	29 69	
Gregor, M.	Clerk	42 58	
Fulton, G. V.	Checker	30 16	
Johnson, J.	Baggageman	55 00	
			$1,157 05

Porcupine Station.

Kersey, G.	Agent and Operator	$326 52	
Price, J. T.	"	1,211 59	
Varrette, E. J.	Operator	2 26	
Ollenbittle, F.	"	24 63	
Tremblay, P.	Sanitary Work	20 00	
Schmallback, J. H.	Agent and Operator	98 50	
Vanmeer, E. W.	Operator	239 65	
			$1,923 15

South Porcupine Station.

Varrette, E. J.	Agent	$283 87	
Daly, R. W.	"	1,100 00	
Davidson, J.	Constable	51 25	
Bates, G. H.	Operator	74 51	
Ackerman, T. R.	"	96 73	
Schmallback, J. H.	"	900 45	
Brown, A. W.	"	23 22	
McDonald, A.	"	7 74	
Barnett, J. H.	"	194 58	
Deacon, M.	Clerk	165 00	
Deacon, K. A.	"	104 67	
Dixon, T.	Shed Foreman	120 00	
Shankman, S. L.	Baggageman	660 00	
Paul, R.	Shedman	240 00	

South Porcupine Station.—Continued.

Scott, E.	Clerk	$385 00	
Devine, I.	"	225 00	
Cattley, B.	Operator	566 30	
Shankman, J.	Shedman	60 00	
Manes, E. J.	"	187 74	
Moore, G.	Clerk	267 66	
Humphrey, R.	Trucker	139 35	
Hudson, J.	Constable	101 89	
			$5,954 96

Schumacher Station.

Matthews, R. D.	Agent	$736 75	
Ritza, A. C.	"	548 15	
Brown, H. G.	Operator	58 86	
Stillwell, W. G.	"	116 86	
Murphy, E. M.	"	191 57	
Marshall, C.	"	360 21	
Donnelly, P. T.	"	47 56	
Gilbert, G.	Cleaning	40 00	
Greer, C.	Checker	7 09	
Long, J. S.	Cleaning	15 00	
Bates, G. H.	Operator	82 37	
Vanmeer, E.	"	23 30	
			$2,227 72

Timmins Station.

Cunningham, G. L.	Agent	$227 42	
Cullen, H. B.	"	867 73	
Varrette, E. J.	Operator	71 85	
Walker, J.	"	11 07	
Brown, A. W.	"	109 77	
Barnet, J. H.	"	647 32	
Clark, M. G.	"	797 16	
McDonald, A.	"	142 04	
Mitchell, W.	Clerk	187 74	
Stenlake, A. D.	Checker	75 48	
Fraser, W.	Clerk	65 81	
Roberts, A.	"	54 19	
Daher, M.	Messenger	113 33	
Wilson, T.	Sanitary Work	10 00	
Luxton, A. G.	Cashier	424 51	
Joy, L.	Checker	59 03	
Spiers, J. C.	"	554 67	
Murphy, E. M.	Operator	191 82	
Bardwell, R.	Messenger	159 17	
Delarto, B.	Laborer	2 00	
Apostoli, L.	"	2 00	
Niarrini, M	"	2 00	
Clone, C.	"	2 00	
Naccarato, F.	"	16 00	
Woodward, F	Checker	106 29	
Burton, W. A.	Clerk	166 33	
Fulton, G. V.	Checker	79 18	
			$5,195 91

Cochrane Station.

Flagler, J. V.	Agent	$810 00
Brown, A. W.	"	485 53
Daly, R. W.	"	210 00
Taylor, G.	Operator	456 68
Robinson, E.	"	901 37
Brown, A. W.	"	185 77
Ollenbittle, F.	"	61 77
Bernier, J. A.	Cashier	900 00

Cochrane Station.—Continued.

Mortson, R. C.	Clerk	$840 00	
Drinkwater, L.	"	660 50	
Grasser, H.	"	27 50	
Buchan, K.	"	7 33	
Williams, R.	"	495 00	
Baker, D.	Shed Foreman	120 00	
Beadleman, P.	Trucker	144 84	
Durway, R.	Messenger	65 80	
Egan, T.	Trucker	194 27	
Deely, F.	Janitor	113 22	
Jamieson, A.	Messenger	233 22	
Bauldry, A.	Janitor	16 13	
Rolfe, T.	"	112 26	
Williams, R.	Trucker	221 93	
Claremont, S. J.	"	321 45	
Cobon, F.	anitor	87 10	
Hainer, J. R.	Operator	150 82	
Boyne, B.	Janitor	212 90	
Dumais, J. H.	Operator	115 03	
McLean, E.	Constable	101 34	
Kirt, H.	Messenger	60 00	
			$8,311 76

Shelter Stations.

Fordyce, G.	Attendant	$50 00	
Schlievert, W.	"	100 00	
Goodfellow, Mrs. R.	"	50 00	
Benndetti, Mrs. M.	"	5 00	
LaBelle, F.	"	41 61	
Baker, D.	"	21 33	
Taguenesse, Mrs. M.	"	12 73	
Cochlin, P.	"	11 93	
Daly, J.	"	33 67	
Dumolin, Mrs. H.	"	4 35	
Feno, Mrs. C.	"	18 33	
Johnson, O.	"	20 00	
Charnick, H.	Sanitary work	93 63	
			$462 58

Conductors.

Nidd, J. T.	Conductor	$1,414 84
Newell, A.	"	1,576 81
Murray, P. J.	"	1,546 03
Graham, H. F.	"	1,558 94
Flegg, R.	"	1,170 81
McParland, T. J.	"	1,430 35
Hamilton, T.	"	1,392 53
Gillespie, J.	"	1,579 34
McNab, J.	"	294 20
Sheppard, E. E.	"	1,434 65
Jessup, J. H.	"	1,429 67
McTavish, R.	"	1,422 88
Ressor, A. P.	"	1,734 60
McKerrow, G.	"	1,675 71
Cockerline, J.	"	1,111 70
Miller, A.	"	1,714 22
Lillie, O.	"	1,382 04
Nixon, W.	"	1,635 04
Rouble, A.	"	1,471 49
Sullivan, J. H.	"	1,549 81
Thomas, F.	"	1,253 89
McConomy, E. J.	"	1,460 51
Connell, J. S.	"	1,571 43
Bourrett, J.	"	1,290 62
Loney, W.	"	1,157 18
Cunning, J.	"	1,468 03

Conductors.—Continued.

Stoughton, N.	Conductor	$1,076 37	
Miller, J. S.	"	798 45	
Beaudet, J. A.	"	1,158 12	
Chambers, A. J.	"	838 09	
Steinhoff, J.	"	1,192 61	
Taylor, W. H.	"	1,028 43	
Aubry, N.	"	1,462 74	
Bradford, J. N.	"	1,253 95	
Bean, J.	"	228 54	
Archer, H. A.	"	1,466 57	
Dubois, C. H.	"	106 72	
King, A.	"	119 86	
King, E. J.	"	4 68	
Richmond, J. N.	"	190 94	
St. Louis, F.	"	42 97	
Smith, T. L.	"	18 72	
Campbell, W. A.	"	439 89	
Willoughby, J. A.	"	899 54	
Seguin, W. J.	"	73 32	
McMillan, R. J.	"	4 68	
Treacy, W. L.	"	338 14	
Kerr. C. D.	"	84 33	
Kennedy, J.	"	246 76	
Atkinson, H.	"	434 70	
McKerrow, J. O.	"	8 53	
Leckie, J. W.	"	235 27	
Robinson, E.	"	11 60	
Manning, W.	"	16 00	
Jackson, T.	"	37 20	
McCallum, F.	"	3 80	
McDonald, A. J.	"	108 52	
Copps, R. W.	"	5 40	
			$50,662 76

Brakemen.

Lee, G.	Brakeman	$830 06	
Shepherd, E. C.	"	968 39	
McQuestion, W. A.	"	912 15	
Edwards, A. S.	"	965 40	
Downey, M. J.	"	967 24	
Coburn, G.	"	976 50	
Cockerline, A. S.	"	958 99	
Thurlow, J.	"	904 29	
Robbins, F.	"	184 34	
Francis, S.	"	1,109 23	
Robinson, E.	"	1,152 88	
Lett, W.	"	1,143 76	
Holland, J.	"	1,134 95	
McDonald, A.	"	909 19	
Ryan, H.	"	880 50	
Edwards, W. J.	"	1,113 81	
Manning, W.	"	1,135 12	
Sullivan, K.	"	997 66	
Fleming, R.	"	1,190 93	
Ferrier, G.	"	1,105 61	
Dougherty, T. J.	"	973 32	
Dorschner, A.	"	1,062 28	
Fisher, R.	"	826 94	
Bailey, J.	"	979 58	
Copps, R. W.	"	1,242 58	
McLeod, J.	"	934 41	
Gauthier, A.	"	1,102 19	
Clark, C.	"	1,099 96	
Whalen, L.	"	343 89	
James, R.	"	1,042 51	
Chambers, J. W.	"	68 80	

Brakemen.—Continued.

Farmer, A.	Brakeman	.....	$1,039 72
Farmer, W.	"	.....	1,048 31
Seguin, J. W.	"	.....	1,263 84
Pigeau, E.	"	.....	1,010 38
McAughey, T.	"	.....	1,071 56
Durack, D. B.	"	.....	1,252 99
Tetreau, E.	"	.....	1,182 35
Scott, F. J.	"	.....	1,056 83
Kelly, H.	"	.....	1,060 46
Larone, A. T.	"	.....	1,024 81
Potter, S. G.	"	.....	871 08
Spencer, W. L.	"	.....	1,204 55
Wall, W. J.	"	.....	59 14
Fraser, E.	"	.....	1,055 31
Goodwin, W. J.	"	.....	575 34
St. Louis, F.	"	.....	1,138 54
Jewell, J. D.	"	.....	1,182 43
Campbell, W. A.	"	.....	806 24
Stoughton, F.	"	.....	777 43
Saunders, F.	"	.....	872 79
Loney, W.	"	.....	129 24
Stoughton, N.	"	.....	440 15
McCaughan, L.	"	.....	1,025 51
Winters, R.	"	.....	916 54
Kerr, C. D.	"	.....	1,022 48
Cramp, A.	"	.....	432 76
McCallum, F.	"	.....	1,104 15
Murphy, W.	"	.....	182 80
Allan, J.	"	.....	944 79
Chambers, W. H.	"	.....	1,088 88
Connelly, F.	"	.....	54 38
Kennedy, J.	"	.....	975 97
Miller, J. S.	"	.....	425 11
Chambers, A. J.	"	.....	420 37
Shea, W. J.	"	.....	62 63
Hogan, J.	"	.....	50 39
Hogan, R. G.	"	.....	133 56
Leckie, J. W.	"	.....	872 29
McMillan, R. J.	"	.....	923 84
Willoughby, J. A.	"	.....	378 83
Treacy, W. L.	"	.....	1,140 37
King, A.	"	.....	1,194 78
Dubois, C. H.	"	.....	1,262 58
Simpkins, W.	"	.....	1,267 31
Smith, T. L.	"	.....	271 76
King, E. J.	"	.....	1,022 07
Atkinson, H.	"	.....	819 91
Jackson, T.	"	.....	888 30
Richmond, J. N.	"	.....	912 33
Beaudet, J. A.	"	.....	239 73
Bourrett, J. W.	"	.....	63 37
Sullivan, H.	"	.....	23 01
Thomas, H.	"	.....	3 63
Cunning, J. H.	"	.....	189 66
McGregor, D.	"	.....	144 90
Biers, H.	"	.....	145 88
Wallace, F.	"	.....	645 45
Burke, G.	"	.....	43 21
Steinhoff, J.	"	.....	98 97
Burke, A.	"	.....	44 20
Wagner, H.	"	.....	598 42
Siple, H.	"	.....	106 56
Gould, A. A.	"	.....	151 06
Aubry, H.	"	.....	635 57
Kilroy, B.	"	.....	515 85
Gatacre, G.	"	.....	518 14
Hoover, R.	"	.....	140 47

Brakemen.—Continued.

Keats, G.	Brakeman		$108 87	
Thompson, W. G.	"		558 36	
Barrett, P. J.	"		401 45	
O'Hara, J.	"		456 63	
Chase, H. T.	"		366 55	
Biers, B. W.	"		432 30	
McKenzie, A. L.	"		478 88	
Ryan, W. C.	"		481 95	
Campbell, T. J.	"		509 10	
Hutchinson, W. W.	"		453 57	
Bradford, J. N.	"		4 44	
Dyre, C.	"		212 76	
Fleury, G.	"		363 12	
Hickey, W.	"		200 97	
Collins, P. H.	"		149 04	
Bradford, E. E.	"		202 70	
Lillie, O.	"		3 81	
Parker, D. J.	"		74 14	
				$78,802 36

Engineers.

Morgan, F.	Engineer		$2,154 36	
Shaw, L. G.	"		2,116 71	
Donohue, J.	"		1,955 91	
Smith, D.	"		2,181 23	
Fry, J.	"		1,897 28	
McLeod, A.	"		1,877 29	
Coomb, G.	"		2,037 08	
Thomas, W.	"		1,179 78	
Millman, W. C.	"		1,981 87	
Wilson, J. T.	"		2,332 00	
McKaig, S. J.	"		1,669 11	
McMillan, N.	"		2,222 99	
Currie, N.	"		1,904 05	
Copeland, J. E.	"		1,776 09	
Hill, T. H.	"		1,702 99	
Ross, W.	"		1,671 02	
Holland, J.	"		1,569 01	
Jessup, R.	"		885 75	
Newman, A.	"		1,392 95	
Ward, A.	"		1,667 65	
McElhaney, H.	"		2,199 46	
Thomas, F.	"		1,128 65	
Lackie, S.	"		2,005 85	
Reynolds, H.	"		1,226 99	
Filiatrault, Z. E.	"		1,683 72	
Plaus, W.	"		1,713 90	
Nornabell, E. A.	"		1,789 73	
Kirk, F. G.	"		1,990 83	
Langlois, J.	"		1,286 11	
Johnston, J. C.	"		1,746 06	
Nolan, P. B.	"		2,114 15	
Durkin, J. T.	"		1,591 71	
Hermeston, H.	"		802 48	
Howard, T.	"		1,723 40	
McKenzie, H. W.	"		1,235 22	
McGovern, H. E.	"		1,081 14	
Copeland, J. R.	"		877 63	
Johnston, J. A.	"		183 49	
Leishman, E. G.	"		745 26	
Bedard, S.	"		953 24	
Newman, S. B.	"		154 96	
Biggs, J.	"		220 32	
Jackson, I.	"		143 89	
McKerrow, J. E.	"		139 46	
Morris, J.	"		660 18	
Vincent, R.	"		4 71	
				$65,577 66

Firemen.

Connell, W. D.	Fireman		$987 39
Bedard, S.	"		787 09
Leishman, E. G.	"		932 66
McKerrow, J. E.	"		887 24
Hermeston, H.	"		697 96
Biggs, J.	"		1,122 37
Newman, S. B.	"		1,020 65
McLeod, J.	"		1,162 59
Jackson, I.	"		1,309 36
McElhaney, A.	"		1,537 30
Minnikin, O.	"		458 28
McMenemy, A.	"		1,184 57
Vincent, R.	"		1,254 57
Tripp, G.	"		1,092 56
Muldoon, T.	"		1,270 51
McKenzie, A. B.	"		1,055 53
Beauchamp, H.	"		1,405 04
Moore, A.	"		1,214 73
Lewis, H.	"		1,216 28
Brooks, G.	"		970 83
McEwan, S.	"		1,036 16
Spiller, A.	"		315 90
Palmer, J.	"		749 21
Woollings, T.	"		1,236 00
Anyan, G. W.	"		1,096 99
Yorkston, J.	"		1,310 96
Croghan, R.	"		44 41
Jarvis, R.	"		974 27
Doyle, J.	"		1,102 79
Allan, F.	"		455 75
Biers, G.	"		1,217 06
Smith, D.	"		1,022 28
Radford, A.	"		1,142 22
Gentil, A.	"		1,221 47
McKenzie, H. W.	"		555 79
McGovern, H. E.	"		624 24
Vreeland, C.	"		1,045 66
Vaillancourt, J.	"		20 64
Anderson, J.	"		735 32
Copeland, J. R.	"		250 71
McBride, J.	"		12 27
Sirois, A.	"		82 12
McCallum, F.	"		20 07
Marshall, T. E.	"		109 52
Savard, E.	"		446 22
Nudds, G.	"		43 61
Miller, C. C.	"		23 12
McKenney, J.	"		574 65
Dodds, J.	"		810 70
Byers, P.	"		785 98
Vernon, A.	"		256 52
Phinney, J.	"		420 26
O'Hern, M.	"		57 32
Noble, S.	"		38 88
Anyan, W.	"		4 46
Aubert, C.	"		19 75
Jakes, G.	"		30 22
Hogg, H.	"		77 63
Bennett, W. H.	"		173 55
Paget, J.	"		193 64
McDonald, M. J.	"		298 68
Sommers, W.	"		75 70
Grant, A.	"		278 84
Gould, R.	"		204 87
Kelly, H.	"		237 20
Brooks, S.	"		6 55
Hayman, C.	"		240 61
Leeson, C.	"		19 63
			$43,267 91

Office of C. E. and S. of M.

Clement, S. B.	C. E. & S. of M.	$4,000 00	
Dickson, G. H.	Chief Draughtsman	1,670 00	
McRoberts, A. A.	Draughtsman	1,130 00	
Scott, C. R.	"	495 00	
Johnson, W. I.	Chief Clerk	1,500 00	
Morgan, N. L.	Stenographer	650 00	
Lemieux, E. G.	"	527 09	
Devine, A.	Office Boy	62 09	
Huntington, R. S.	"	315 00	
McKenzie, G. E.	Stenographer	23 71	
Chapelle, C.	"	8 00	
			$10,380 89

Englehart Greenhouse.

Kerrigan, D.	Gardener	$840 00	
Aitcheson, F.	"	655 00	
Laborers		1,298 77	
			$2,793 77

Telegraph and Telephone Department, North Bay.

Kelly, W. J.	Superintendent	$1,660 00	
Ferguson, L. M.	Inspector	1,080 00	
Picard, P.	Lineman	974 08	
Linemen (extra)		201 00	
			$3,915 08

Telegraph and Telephone Department, Englehart.

Simpson, G.	Lineman	$973 10	
Brusseau, A.	"	62 10	
Linemen (extra)		462 04	
			$1,497 24

Telegraph and Telephone Department, Cochrane.

Loisel, S.	Lineman	$966 28	
Linemen (extra)		276 40	
			$1,242 68

Elk Lake-Gowganda Telephone Line.

Sullivan, N.	Lineman	$675 00	
Sage, P.	"	7 75	
McSorley, W.	"	2 50	
Sharp, F. W.	"	1 00	
			$686 25

Telegraph and Telephone, Extra Gang.

Boyer, J.	Foreman	$518 22	
Linemen		4,548 33	
			$5,066 55

Office of Master Mechanic.

Ross, T.	Master Mechanic	$2,090 00	
Ellwood, R.	Chief Clerk	1,010 00	
Raymond, J. C.	Stenographer	650 00	
Lee, H.	Office Boy	202 42	
Battley, C.	A. B. Inspector	1,490 00	
Rodgers, H. L.	Draughtsman	1,380 00	
Sale, H.	"	340 00	
Brown, S.	Office Boy	42 74	
McGirr, N.	"	5 24	
Leppan, F.	"	49 16	
			$7,259 56

Road Foreman of Engines.

Douglass, J. J.	Road Foreman	$1,780 00	
			$1,780 00

Motive Power Department, North Bay.

Black, W.	General Foreman	$1,476 13	
Vanstone, A.	"	130 00	
	Machinists	17,851 25	
	Carpenters	868 17	
	Other Shopmen	47,407 80	
			$67,733 35

Car Department, North Bay.

Beath, J.	Car Foreman	$1,200 00	
	Carpenters	5,233 45	
	Other Shopmen	27,704 18	
			$34,137 63

Carpenter Shop, North Bay.

Bailey, J.	Foreman	$550 00	
Ryan, J. P.	"	137 67	
Williamson, R.	"	188 00	
	Carpenters	10,210 24	
	Other Shopmen	17,745 61	
			$28,831 52

M. P. and Car Department, Cobalt.

Sibbald, T.	Car Inspector	$1,032 44	
	Other Shopmen	769 19	
			$1,801 63

M. P. and Car Department, Elk Lake.

	Other Shopmen	$1,857 55	
			$1,857 55

M. P. and Car Department, Englehart.

Clarke, R.	Foreman	$1,354 84	
	Machinists	3,985 68	
	Other Shopmen	19,996 61	
			$25,337 13

M. P. and Car Department, Timmins.

Thompson, E.	Foreman	$1,200 00	
Verner, W.	"	87 69	
	Other Shopmen	6,784 20	
			$8,071 89

M. P. and Car Department, Iroquois Falls.

	Other Shopmen	$298 98	
			$298 98

M. P. and Car Department, Cochrane.

Moth, A. T.	Foreman	$984 02	
	Machinists	333 73	
	Other Shopmen	6,797 10	
			$8,114 85

Resident Engineer and Staff.

Boast, R. G.	Res. Engineer	$1,550 00	
	Inst. men, etc	9,146 44	
			$10,696 44

Locating Engineers.

Maher, W. R.	Locating Engineer	$2,400 00	
	Assistants	1,282 77	
			$3,682 77

Office of B. and B. Master.

Oldham, W. J.	B. & B. Master	$1,800 00	
Staffird, E. J.	Clerk	960 00	
			$2,760 00

B. and B. Department, Water Service.

Bland, R.	Inspector	$960 00	
	Pumpmen, etc.	7,837 54	
			$8,797 54

B. and B. Department, Extra Gangs.

Carpenters		$29,409 79	
All Others		31,830 04	
			$61,239 83

Office of General Roadmaster.

Young, Wm.	Gen. Roadmaster	$1,850 00	
Young, J.	Chief Clerk	890 00	
Jacobs, G. E.	Stenographer	680 00	
			$3,420 00

Track Supervisors.

Edwards, A.	Supervisor	$1,060 48	
Switzer, W.	"	598 11	
Faught, S. J.	"	1,500 00	
Litle, D.	"	8 06	
Drinkwater, J.	"	1,500 00	
			$4,666 65

Section Gangs.

Section No. 0	Foreman	$952 83	
	Laborers	10 369 76	
" 1	Foreman	840 56	
	Laborers	1,890 50	
" 2	Foreman	847 45	
	Laborers	2,325 45	
" 3	Foreman	833 14	
	Laborers	1,868 84	
" 4	Foreman	851 41	
	Laborers	1,900 31	
" 5	Foreman	841 09	
	Laborers	2,079 26	
" 6	Foreman	832 88	
	Laborers	2,272 93	
" 7	Foreman	833 95	
	Laborers	2,159 10	
" 8	Foreman	852 75	
	Laborers	2,088 84	
" 9	Foreman	838 88	
	Laborers	2,033 13	
" 10	Foreman	856 21	
	Laborers	2,112 77	
" 11	Foreman	873 42	
	Laborers	2,202 68	
" 12	Foreman	848 25	
	Laborers	2,372 87	

Section Gangs.—Continued.

Section No. 13	Foreman		$832 50
	Laborers		2,297 83
" 14	Foreman		897 01
	Laborers		2,431 15
" 14½	Foreman		838 19
	Laborers		2,111 35
" 15	Foreman		874 75
	Laborers		3,932 36
" 15½	Foreman		629 63
	Laborers		1,345 58
" 16	Foreman		879 16
	Laborers		2,858 51
" 17	Foreman		1,011 65
	Laborers		3,867 00
" 18	Foreman		838 72
	Laborers		2,398 63
" 19	Foreman		850 89
	Laborers		2,405 74
" 20	Foreman		867 58
	Laborers		2,168 47
" 21	Foremen		1,816 01
	Laborers		9,041 68
" 21½	Foreman		851 17
	Laborers		2,915 41
" 22	Foreman		828 12
	Laborers		2,623 95
" 23	Foreman		835 30
	Laborers		2,383 26
" 24	Foreman		833 41
	Laborers		2,350 16
" 25	Foreman		866 94
	Laborers		2,397 22
" 26	Foreman		831 30
	Laborers		2,631 00
" 27	Foreman		824 66
	Laborers		2,412 96
" 28	Foreman		849 06
	Laborers		2,344 28
" 29	Foreman		836 04
	Laborers		2,353 41
" 30	Foreman		831 04
	Laborers		2,352 28
" 31	Foreman		887 40
	Laborers		2,697 32
" 32	Foreman		837 38
	Laborers		2,281 58
" 33	Foreman		861 22
	Laborers		2,888 63
" 34	Foreman		821 21
	Laborers		2,425 29
" 35	Foreman		826 53
	Laborers		2,115 92
" 36	Foreman		842 69
	Laborers		2,139 83
" 37	Foremen		1,559 37
	Laborers		4,475 03
" 38	Foreman		844 00
	Laborers		2,643 99
" 39	Foreman		833 68
	Laborers		2,076 47
" 40	Foreman		837 15
	Laborers		2,065 59
" 41	Foreman		860 97
	Laborers		2,774 04
" 42	Foreman		890 78
	Laborers		3,238 15
" 43	Foreman		854 34
	Laborers		2,620 72

Section Gangs.—Continued.

Section No. 44	Foreman	$832 62		
	Laborers	2,353 46		
" 45	Foreman	856 20		
	Laborers	2,314 44		
" 46	Foreman	873 70		
	Laborers	2,655 08		
" 47	Foreman	840 04		
	Laborers	1,896 85		
				$183,946 29

Road Department, Extra Gangs.

Extra Gang No. 1	Foremen	$1,652 19		
	Laborers	18,670 76		
" 2	Foremen	1,068 37		
	Laborers	4,026 97		
" 3	Foreman	987 45		
	Laborers	3,818 95		
" 4	Foreman	86 64		
	Laborers	692 32		
" 5	Foreman	949 40		
	Laborers	11,580 47		
" 6	Foreman	244 02		
	Laborers	1,314 69		
" 7	Foreman	1,000 99		
	Laborers	5,962 73		
" 8	Foreman	901 15		
	Laborers	7,609 18		
" 9	Foreman	254 53		
	Laborers	4,303 65		
" 10	Foreman	1,170 70		
	Laborers	7,827 09		
" 11	Foreman	744 25		
	Laborers	4,594 89		
" 12	Foreman	835 05		
	Laborers	4,796 43		
" 13	Foreman	1,177 33		
	Laborers	14,089 84		
" 14	Foreman	494 00		
	Laborers	3,048 73		
" 15	Foremen	946 02		
	Laborers	11,629 46		
" 16	Foreman	478 39		
	Laborers	2,463 71		
" 17	Foreman	762 09		
	Laborers	6,108 12		
" 18	Foreman	627 59		
	Laborers	3,412 97		
" 19	Foreman	698 63		
	Laborers	4,235 25		
" 20	Foreman	215 15		
	Laborers	1,544 57		
" 21	Foreman	49 48		
	Laborers	571 52		
" 22	Foreman	288 20		
	Laborers	2,070 62		
" 23	Foreman	155 02		
	Laborers	1,223 66		
" 26	Foreman	80 00		
	Laborers	524 87		
" 27	Foreman	79 33		
	Laborers	57 86		
Doal's Gang	Foreman	62 25		
	Laborers	249 00		
				$142,436 53

Total Payrolls for year $1,112,866 73

North Bay, Nov. 30th, 1914.

Golden Falls, Charlton, which supplies power to the Electric Plant.

TEMISKAMING AND NORTHERN ONTARIO RAILWAY

EXPENDITURE FOR FISCAL YEAR, 1914.

ADAMS & WESTLAKE, CHICAGO, ILL.

Voucher.		
45755—Coach parts	$8 10	
45678—Coach supplies	50 00	
47567—Hinges, switch keys, bumpers and washers	121 16	
47802—Coach parts	16 18	
49063—Bolts for sash locks	52 56	
49032—Coach parts	1 12	
50215—Coach parts, switch keys	43 36	
50158—Sash lifts diaphragms	194 72	
		$487 20

AMERICAN BANK NOTE CO., OTTAWA, ONT.

43813—Annual passes, Nos. 1 to 1100 for 1914	$30 00	
49630—Annual passes, Nos. A to 1100 for 1915	55 00	
		$85 00

FRED. ARMSTRONG & CO., LTD., TORONTO, ONT.

44173—Repairing switch plate, Nov. 15th, 1914	$2 50	
		$2 50

THE ART METROPOLE, TORONTO, ONT.

44235—Plan mounted for registration	$1 00	
44285—Steel tape	6 10	
43920—Blue prints	328 06	
44648—Levelling rod ribbons, Blue print paper	13 05	
45733—Negatives and whites supplied	14 82	
45292—White's plans of estuary of Moose river	8 35	
45676—Rod paper, blue print paper	16 80	
47569—Scales, books, draughting supplies	122 98	
47808—Brushes, nickel tacks, buff detail paper	7 36	
48250—Express on tracings from North Bay to Toronto	10 60	
48683—New bubble fitted to Gurney transit	1 73	
49065—Level rod cloths, soapstone	6 36	
50217—New bubble to tube	5 65	
50160—Blue print paper, wrapping paper	21 25	
		$564 11

AMERICAN BRAKE SHOE & FOUNDRY CO., MAHWAH, N.J.

44637—Brake shoes	$51 28	
44534— " "	230 57	
44596— " "	270 60	
45075— " "	334 18	
45109— " "	193 05	
46285— " "	593 60	
47804— " "	736 05	
48513—Driver shoes	654 50	
49633— " "	6 61	
50219—Brake shoes	300 80	
		$3,371 24

ALLEN MANUFACTURING COMPANY, LTD., TORONTO, ONT.

43811—Laundry, private cars "Sir James" and "Abitibi"	$15 83	
44237— " " " "Sir James" and "Abitibi"	38	
45033— " " " "Sir James" and "Abitibi"	11 26	
45248— " " car "Sir James"	6 49	
46501— " " " "Sir James"	5 47	
47453— " " " "Sir James"	2 63	
48687— " " " "Sir James"	10 25	
48716— " " " "Sir James"	5 53	
50175— " " " "Sir James"	55	
49818— " " " "Sir James"	7 59	
50384— " " " "Sir James"	3 71	
		$69 69

AMERICAN RAILWAY ASSOCIATION, NEW YORK, N.Y.

44345—Supplies, car service and per diem rules	$0 90	
45635—Annual dues, 1914, and assessment No. 46	52 89	
47451—Assessment No. 47, May, 1914	42 99	
48906—Copies code of car service rules	60	
		$97 38

ARMOUR CAR LINES, CHICAGO, ILL.

44226—Car service balance, October, 1911	$1 90	
45239— " " " November, 1913	30 48	
45360— " " " December, 1913	1 90	
46762— " " " February, 1913	1 69	
47460— " " " April, 1914	1 54	
48219— " " " May, 1914	1 69	
48616— " " " June, 1914	1 90	
49735— " " " July, 1914	15 04	
49446— " " " August, 1914	10 06	
		$66 20

ATCHISON, TOPEKA & SANTA FE RAILWAY, TOPEKA, KAN.

44019—Car service balance, September, 1913	$4 95	
44964—Car repairs, bill No. 81324, October, 1913	1 30	
45237—Car service balance, November, 1913	31 05	
45358—Car service balance, December, 1913	28 45	
45959—Car repairs, bill No. 81961	1 69	
46028—Car repairs, bill No. 81966	2 76	
46321—Car service balance, January, 1914	14 85	
46544—Car repairs bill, No. 82707, January, 1914	5 14	
47534—Ticket balance, April, 1914	3 10	
48006—Car repairs bill, No. 83326 W	4 39	
49260—Car repairs bill, No. 84014 W	46	
49309—Car repairs bill, No. 84049 W	4 15	
48702—Ticket balance, June, 1914	9 08	
		$111 37

ARMSTRONG & KINGSTON, LATCHFORD, ONT.

46170—Loss account, 4 bottles whiskey broken in transit, claim 7635	$2 01	
		$2 01

AMERICAN HOIST & DERRICK CO., ST. PAUL, MINN.

44778—Steel crank-shaft pinion	$18 50	
45589—Repair parts	13 00	
45250—Transportation and time of erector, J. A. Chisholm, installing ditcher	246 86	
49034—Repair parts	16 20	
50211— " "	14 90	
		$309 46

ANN ARBOR RAILROAD, DETROIT, MICH.

44023—Car service balance, September, 1913	$0 45	
45957—Car repairs, bill No. 238, October, 1913	2 41	
46022— " " " No. 292, December, 1913	4 83	
48004— " " " No. 311, January, 1914	16 80	
49258— " " " No. 315, April, 1914	1 85	
		$26 34

ANGLO-CANADIAN TYPE AND PRINTING MACHINERY CO., LTD., TORONTO, ONT.

47372—Loss account, damage to printing press, claim No. 7535	$26 75	
		$26 75

ASSOCIATION OF TRANSPORTATION & CAR ACCOUNTING OFFICERS, CHICAGO, ILL.

45651—Account assessment No. 6	$3 95	
		$3 95

AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS, TORONTO, ONT.

45451—Annual dues for year 1914	$5 00	
		$5 00

ALABAMA GREAT SOUTHERN RAILROAD, WASHINGTON, D.C.

46017—Car repairs, bill 1538	$1 16	
46020— " " bill 1768	4 04	
46542— " " bill 2054	2 20	
49951— " " bill 3345	1 52	
49700— " " bill 3554	66	
		$9 58

ATLANTIC COAST LINE RAILROAD, WILMINGTON, N.C.

44021—Car service balance, September, 1913	$17 55	
44851—Car repairs, bill No. 10306	4 47	
44960—Car repairs, bill No. 10730	5 88	
45243—Car service balance, November, 1913	20 25	
46026—Car repairs, bill 11543	5 51	
46540— " " bill 354	4 43	
46702— " " bill 733, January, 1914	3 28	
47955— " " bill 1105	10 02	
48618—Car service balance, June, 1914	1 15	
49311—Car repairs, bill M.P. 1824	12 72	
49006—Car repairs, bill M.P. 2132	4 18	
49698—Car repairs, bill M.P. 145	6 00	
		$95 53

AMERICAN REFRIGERATOR TRANSIT CO., ST. LOUIS, MO.

Voucher.

45241—Car service balance, November, 1914	$3 44	
45362— " " " December, 1913	1 90	
47187— " " " March, 1914	3 90	
		$9 24

ANCHOR PACKING COMPANY, WALKERVILLE, ONT.

46691—Packing	$14 53	
		$14 53

FRANK AUBERT, ENGLEHART, ONT.

43809—Englehart Certificate No. 5 (final) clearing fireguards	$67 50	
		$67 50

ATCHISON, TOPEKA & SANTA FE COAST LINES, LOS ANGELES, CAL.

44962—Car repairs, bill No. 15716	$0 44	
		$0 44

THE ALEXANDER & CABLE LITHOGRAPHING CO., LTD., TORONTO, ONT.

44404—Embossing and numbering passes (1914)	$2 00	
45622—Printing card passes, etc	8 50	
48685—Printing, 1914, on time card passes	1 50	
47706—Lithographing drafts	24 00	
49816—Embossing and numbering passes (1915)	2 00	
		$38 00

AMERICAN ARCH CO., NEW YORK, N.Y.

44577—Fire Brick	$20 25	
45757— "	29 50	
47070— "	13 50	
47806— "	2 50	
49892— "	19 65	
		$85 40

ATLANTA, BIRMINGHAM & ATLANTIC RAILWAY, ATLANTA, GA.

45364—Car service balance, December, 1913	$9 45	
46024—Car repairs, bill 12702	5 50	
46538—Car repairs, bill 3709, February 20th, 1914	39	
		$15 34

HUGH ALLAN, INSPECTOR RESIDENT ENGINEER'S OFFICE, NORTH BAY, ONT.

46577—Expenses, March, 1914	$3 80	
48226— " May, 1914	13 00	
48766— " August 24th to September 8th, 1914	11 00	
		$27 80

ALGOMA CENTRAL & HUDSON BAY RY., SAULT STE. MARIE, ONT.

48221—Car service balance, May, 1914	$0 45	
		$0 45

AMERICAN RAILWAY ENGINEERS & MAINTENANCE OF WAY ASSOCIATION, CHICAGO, ILL.

45653—Subscription and dues, January to December, 1914	$10 50	
		$10 50

AMERICAN RAILWAY M. M. ASSOCIATION, CHICAGO, ILL.

48248—Annual dues for year, from June, 1914	$5 00	
		$5 00

AURORA METAL COMPANY, AURORA, ILL.

46689—Packing	$21 00	
49067— "	17 50	
		$38 50

ALABAMA, TENNESSEE & NORTHERN RAILWAY, MOBILE, ALA.

44025—Car service balance, September, 1913	$1 35	
45366— " " " December, 1913	3 15	
		$4 50

ADVERTISING & PUBLISHING AGENCY, TORONTO, ONT.

46660—Advertisement, Directory, S.O.E.	$20 00	
		$20 00

ANNUAL REVIEW PUBLISHING CO., LTD., TORONTO, ONT.

48718—Advertisement, Canadian Annual Review of Public Affairs	$25 00	
		$25 00

ABITIBI PULP & PAPER CO., MONTREAL, QUE.

43637—Refund on freight charges, account construction	$48 26	
43689—Refund of freight account, construction work	797 02	
44175—Meals supplied engineering party, September, 1913	45 00	
44058— " " engineering party, October, 1913	15 50	
46287— " " October, 1913	27 30	
46289— " " November, 1913	7 00	
47260—Work performed, Iroquois Falls branch, as per progress, Certificate No. 1, final	2,696 00	
47708—Car repairs, bills 314938, 315179, 314843, 315221, 315150	12 00	
49477—Rebate on construction material, claim No. 8405	81 09	
49576—Rebate on construction material as per agreement, claim 8576	1,405 00	
		$5,134 17

ATLANTIC CITY R. R. CO., PHILADELPHIA, PA.

44405—Car repairs, August, 1913	$0 63	
		$0 63

AYLMER PUMP & SCALE CO., AYLMER, ONT.

44780—Drive point	$6 50	
48511—Pumps	22 05	
49572—Cost of repairs to scales	5 25	
		$33 80

ABRAMSON & SHANKMAN, PORCUPINE, ONT.

46111—Loss account, shortage, one case milk in transit, claim No. 7401	$3 90	
48422—Loss account, shortage, wine, in transit, claim 7788	3 00	
		$6 90

A. E. ADSHEAD, HAILEYBURY, ONT.

44100—Loss account, catsup broken in transit, claim No. 7682	$0 42	
47376—Loss account, damage to sugar in transit, claim No. 8336	20 00	
49570—Loss account, chewing gum, damaged, claim No. 8809	2 06	
		$22 48

MRS. R. ANSELL, MATHESON, ONT.

47378—Loss account, shortage, two bags flour in transit, claim No. 7808	$4 70	
		$4 70

S. ARGRI, SOUTH PORCUPINE, ONT.

44056—For unclaimed wages, man No. 111, December, 1912, pay roll No. 160	$17 92	
		$17 92

S. ATKINS, CAR INSPECTOR, NORTH BAY, ONT.

49634—Expenses, October 11th to 14th, 1914	$4 00	
		$4 00

M. ABRAMAVOICH, COBALT, ONT.

44925—Loss, shortage fish in transit, claim No. 6545	$5 08	
		$5 08

S. AUMONT, NUSHKA, ONT.

46269—Ties	$102 79	
46658— "	53 55	
47443— "	103 11	
		$259 45

F. AUBREY, NUSHKA, ONT.

46269—Ties	$145 78	
48184—Ties	71 90	
		$217 68

ANDERSON & COMPANY, LTD., NORTH BAY, ONT.

46466—Loss account, shortage one pail star mints	$1 65	
		$1 65

L. A. ALLEN, TORONTO, ONT.

46602—For full release and discharge for all claims and demands, alleged injuries received March 9, 1914	$200 00	
		$200 00

ASSOCIATION OF AMERICAN RY. ACCOUNTING OFFICERS, CHICAGO, ILL.

47509—Annual membership fee, year ending May 31st, 1915	$7 00	
47702—Copies Code, switching reclaim rules	20	
49632—Proportion of assessment for expenses by associations ..	5 22	
		$12 42

ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS, CHICAGO, ILL.

47704—Annual dues, July 1st to June 30th, 1915	$10 00	
		$10 00

ARIZONA EASTERN R. R., TUCSON, ARIZ.

47536—Ticket sales, April, 1914	$ 50	
48305—Ticket sales, May, 1914	6 20	
		$6 70

ALGOMA STEEL CORPORATION, LTD., SAULT STE. MARIE, ONT.

47548—Steel rails	$23,885 08	
47550—Steel rails	23,513 80	
48515—Tie plates	1,801 40	
48874—Tie plates	30 60	
		$49,230 88

THE AMERICAN CRAYON CO., SANDUSKY, OHIO.

47810—Crayons	$3 30	
		$3 30

AUTO RENOVATING CO., TORONTO, ONT.

48323—Cleaning rugs	$13 55	
		$13 55

THE ACTON FREE PRESS, ACTON, ONT.

48375—Advertisement, Homeseekers' excursion	$4 00	
		$4 00

THE ALMONTE GAZETTE, ALMONTE, ONT.

48393—Advertisement, Homeseekers' excursion	$5 00	
		$5 00

AILSA CRAIG BANNER, AILSA CRAIG, ONT.

48395—Advertisement, Homeseekers' excursion	$1 50	
		$1 50

AMERICAN RY. ASSOCIATION, NEW YORK, N.Y.

49820—Rule book	$3 00	
		$3 00

THE ARNPRIOR CHRONICLE, ARNPRIOR, ONT.

48397—Advertisement, Homeseekers' excursion	$3 00	
		$3 00

THE ADVANCE, DUTTON, ONT.

48397—Advertisement, Homeseekers' excursion	$0 75	
		$0 75

THE ATHENS REPORTER, ATHENS, ONT.

48401—Advertisement, Homeseekers' excursion	$0 60	
		$0 60

ADVOCATE PRINTING CO., EXETER, ONT.

48447—Advertisement, Homeseekers' excursion $2 00 $2 00

W. N. & S. J. ALLEN, "THE HERALD," CARLETON PLACE, ONT.

48831—Advertisement, Homeseekers' excursion $2 00 $2 00

ADVANCE PRINTING CO., LTD., KINGSTON, ONT.

48873—Advertisement, Homeseekers' excursion $2 00 $2 00

ASSOCIATION OF CANADIAN BANK CLERKS, TORONTO, ONT.

48476—Donation in aid of Canadian Red Cross Society $25 00 $25 00

WM. ASSAF, ELK LAKE, ONT.

49475—Loss account, shortage bacon, claim 8614 ..... $2 80 $2 80

AIR BRAKE ASSOCIATION, BOSTON, MASS.

50213—Book No. 2 B and 5 F $3 75 $3 75

ALGOMA EASTERN RY., SAULT STE. MARIE, ONT.

49448—Car service balance, August, 1914 ..... $0 45 $0 45

BALTIMORE AND OHIO RAILROAD, BALTIMORE, MD.

44407—Car repairs, July, bill No. 10308	$2 51	
44228—Car service balance, October, 1913	31 50	
45368—Car service balance, December, 1913	42 75	
45925—Car repairs, bill 11436-11438	38 63	
46030—Car repairs, bill 1084	19 74	
46323—Car service balance, January, 1914	477 00	
46704—Car repairs, bill 3084, June 11th, 1913 to Jan. 1914	29 28	
46764—Car service balance, February, 1914	139 05	
47189—Car service balance, March, 1914	20 70	
47375—Proportion of commercial allowance on account of immigrant orders exchanged for tickets at Philadelphia and Baltimore	26	
47965—Car repairs, bill No. 4411	17 21	
48012—Car repairs, bill No. 5265, May, 1914	11 06	
48697—Proportion of commercial allowance paid Steamship Co. on account of immigrant orders exchanged for tickets, May, 1914	26	
49315—Car repairs, bill 6329, June, 1914	10 55	
49262—Car repairs, bill 7329	16 58	
49702—Car repairs, bill 9274	13 49	
		$870 57

J. E. BURNSTEAD, CANE, P.O., ONT.

44470—Ties $74 37 $74 37

R. H. BROWN & CO., LATCHFORD, ONT.

46761—Groceries $30 14 $30 14

BUFFALO, ROCHESTER & PITTSBURG RY., ROCHESTER, N.Y.

44857—Car repairs, bill No. 3460	$0 44	
44230—Car service balance, October, 1913	12 60	
45245— " " November, 1913	49 95	
45370— " " December, 1913	17 10	
46548—Car repairs, bill 5376, December, 1913	2 93	
46712—Car repairs, bill 5783, January, 1914	3 31	
47191—Car service balance, March, 1914	22 95	
48223— " " May, 1914	21 15	
48620— " " June, 1914	24 75	
49319— " repairs, bill 7422	4 84	
49266— " " 7876	2 68	
49737— " service balance, July, 1914	5 40	
		$168 10

BESSEMER & LAKE ERIE RAILROAD, PITTSBURG, PA.

44027—Car service balance, September, 1913	$58 05	
44853—Car repairs, bill No. 13680	37 80	
44234—Car service balance, October, 1913	64 80	
45247— " " November, 1913	51 30	
45372— " " December, 1913	113 85	
46325— " " January, 1914	12 60	
46706—Car repairs, bill 3242, February, 1914	4 08	
46766—Car service balance, February, 1914	23 85	
47193—Car service balance, March, 1914	56 70	
47963—Car repairs, bill No. 14483	44	
47462—Car service balance, April, 1914	42 30	
48227— " " May, 1914	62 55	
48622— " " June, 1914	66 15	
49739— " " July, 1914	31 95	
49450— " " August, 1914	22 95	
50090— " " September, 1914	10 35	
		$659 72

GEO. BOWLEY, JOHNSONBURG, PA.

46178—Siding rebate car ex siding M. P. 110¾, claim 8279	$10 00	
		$10 00

W. BRAY, MACHINIST, NORTH BAY, ONT.

50058—Expenses, October, 1914	$1 40	
		$1 40

BEGG BROS., NORTH BAY, ONT.

44645—Rubber boots	$20 70	
44717—Cotton, rubber boots	12 90	
45759—Cotton	13 30	
45684—Dry goods	10 26	
46691*a*—Cotton	8 40	
47571—Dry goods	48 91	
47820—Towelling, cotton, sheets, cheesecloth	17 19	
49079—Cotton, oilcloth towelling, sheets	26 80	
49038—Blankets, dry goods	33 79	
50229—Dry goods, rubber boots	36 43	
49898—Pillows and pillow cases	2 00	
50166—Towelling	1 20	
		$231 88

BELL TELEPHONE COMPANY OF CANADA, TORONTO, ONT.

43775—Telephone message, Cache Bay to North Bay, Aug. 28, 1913	$0 35
43815—Exchange service, October 1st to June 30th, 1914	67 85
43977—Telephone interchange, July and October, 1913	39 70
44241—Long distance messages from phone No. 4 to Toronto	8 55

BELL TELEPHONE COMPANY OF CANADA, TORONTO, ONT.—*Continued.*

44243—Exchange service, Oct. 31st to Dec. 31st, long distance phone No. 161	$4 45	
44062—Messages, Toronto office, November, 1913	6 00	
44166—Long distance phone messages, October and November, 1913	3 00	
45453—Telephone exchange service, Jan. 1st to Mar. 31st, 1914	90 75	
45637—Exchange service, Jan. 1st to Mar. 31st, and long distance calls	56 13	
45655—Telephone exchange service, Jan. 1st to Mar. 31st, 1914	15 50	
45252—Long distance service, telephone No. 4, North Bay	2 50	
45298— " " " phones 161-195	14 85	
45654— " " " phone M 7754	2 95	
45900— " " " phones 161-195	2 50	
46441— " " " and exchange service to June 30th, 1914	38 65	
46443— " " " telephone No. 4, North Bay	3 30	
46641—Telephone interchange, December, 1913, to February, 1914	54 95	
46406—Telephone exchange service, April 1st to June 30th, 1914	110 20	
46598—Messages, March 23rd to April 20th, 1914	6 90	
46986—Telephone interchange, month of march, 1914	4 02	
47145—Toll service, North Bay, phones No. 203-161-4, March and April, 1914	10 70	
47373—Toll service, North Bay, phone No. 195, Toronto	1 25	
47455—Telephone interchange, April. 1914	38 34	
47683—Toll service, as per statement, April 1st to May 15th, 1914	12 10	
47710—Messages to Sturgeon Falls and Toronto, April 29th to May 2nd, 1914	1 75	
47762—Exchange service, July 1st to Sept. 30th, 1914, and toll service to June 16th, 1914	51 55	
48184a—Toll service, phone M. 7754	11 70	
48521—Toll service, May 21st to June 20th, phone No. 4	7 05	
48601—Exchange service, phones Nos. 67, 4, 213	30 73	
48603—Toll and exchange service, May 21st to Sept. 30th, 1914	92 85	
49301—Telephone interchange, May and June, 1914	248 79	
48478—Messages, phone No. 161	11 60	
49619—Exchange service and toll service, Oct. 1st to Dec. 31st, 1914, Toronto office	45 25	
49625—Toll service, July and August, 1914	9 50	
49727—Messages, June 9th to July 20th, 1914	5 50	
49827—Telephone exchange, July, 1914	51 31	
49933—Telephone interchange, August and September, 1914	148 15	
49995—Telephone rental, Oct. 1st to Dec. 31st, 1914, phone No. 51, North Bay	10 25	
49800—Telephone exchange service, Oct. 1st to Dec. 31st, 1914; Aug. 25th to Sept. 19th, 1914, office S. of T. & T., general roadmaster, residence, office of C. E. & S. of M.	24 25	
50162—Telephone exchange and toll service, Aug. 26th to Dec. 31st, 1914	77 15	
50442—Telephone interchange, October, 1914	58 80	
		$1,481 67

BALTIMORE & OHIO RY., BALTIMORE, MD.

49953—Car repairs, bill No. 8321, August 1914	$11 61	
		$11 61

BROTHERHOOD OF R. R. STATIONMEN OF NORTH AMERICA, TORONTO, ONT.

49564—Advertising in the *Railroad Men's Magazine*	$15 00	
		$15 00

NORMAN BUSS, NUSHKA, ONT.

49802—Clearing station grounds, Homer, October, 1914	$100 00	
		$100 00

BUNTIN, GILLIES & Co., LTD., HAMILTON, ONT.

44287—Staplers, stationery	$22 68	
44518—File backs, books	10 12	
44538—Stationery	85 44	
44650—Stationery	123 69	
45111—Forms	38 02	
44135—Stationery	66 02	
45596—Stationery	107 16	
46229—Pressboard	25 19	
46447—Stationery	34 05	
46639—Fasteners	1 64	
46902—Stationery	106 18	
47513—Pins, stationery	85 78	
47666—Sealing wax, stationery	78 02	
48517—Time books	15 07	
48565—Stationery	44 01	
48566—Stationery	95 90	
49040—Pencils, paper fasteners	8 87	
49857—Filing envelopes	14 70	
49532—Stationery	78 99	
50168—Stationery	61 35	
		$1,102 88

BOOTH, COULTER COPPER & BRASS CO., LTD., TORONTO, ONT.

45690—Copper tanks	$130 00	
		$130 00

BUFFALO AND SUSQUEHANNA RAILWAY, BUFFALO, N.Y.

44029—Car service balance, September, 1913	$667 80	
44033—Car service balance, September, 1913	358 20	
44859—Car repairs, bill D-118, September, 1913	2 96	
44236—Car service balance, October, 1913	535 05	
44242— " " October, 1913	207 90	
45249— " " November, 1913	430 65	
45255— " " November, 1913	156 60	
45374— " " December, 1913	68 85	
45380— " " December, 1913	205 65	
46023—Car repairs, bill F 166	94	
46025—Car repairs, bill F, 105	67	
46327—Car service balance, January, 1914	46 40	
46329— " " January, 1914	191 25	
46645—Car repairs, bill G, 148, Dec., 1913	55	
46552—Car repairs, bill H-101, Jan.-Feb., 1914	2 87	
46710—Car repairs, bill 1-209-182, Jan.-Feb., 1914	78 71	
46768—Car service balance, February, 1914	97 65	
46772— " " February, 1914	385 65	
47195— " " March, 1914	353 25	
47197— " " March, 1914	120 15	
47961—Car repairs, bill No. 249, March, 1914	10 13	
47464—Car service balance, April, 1914	58 90	
48201— " " February, 1914	1 80	
48225— " " May, 1914	14 40	
48231— " " May, 1914	162 45	
48624— " " June, 1914	71 55	
49741— " " July, 1914	130 95	
49452— " " August, 1914	71 10	
50092— " " September, 1914	190 50	
47468— " " April, 1914	60	
47470— " " April, 1914	258 30	
48008—Car repairs, bill K-183	3 97	
48628—Car service balance, June, 1914	408 15	
49321—Car repairs, bill L-159	1 26	
49745—Car service balance, July, 1914	860 40	
49456— " " August, 1914	998 55	
50096— " " September, 1914	283 50	
		$7,438 26

BANK OF OTTAWA, NORTH BAY, ONT.

43880—Returned draft, No. 4333, N. O. T. & M., Sept., 1913	$0 45	
45101— " " " 4400, G. M. Ry., Oct., 1913	1 35	
46101— " " " 4625, Pennsylvania Ry., Oct., 1913	15 10	
46197— " " " 4640, Evansville Ry. Co., Oct., 1913	1 80	
46259— " " " 4545, British Columbia Ry., Dec., 1913	5 40	
46338— " " " 4707, New Orleans Mobile & Chicago, Jan., 1914	90	
47025— " " " 4768, Buffalo & Susquehanna Ry., Jan., 1914	2 25	
47057— " " " 4810, Missouri Pacific Ry., Feb., 1914	167 40	
47065— " " " 4816, Missouri & North Arkansas, Feb., 1914	90	
47069— " " " 4789 and 4818. Cape Girardeau Northern Ry., Feb., 1914	34 20	
47441— " " " 4863, Can. Northern Ry., March, 1914	45	
47443— " " " 7303, Payment of draft, ties, C. Godfrey	125 88	
47445— " " " 4916, Missouri, North Arkansas Ry., July, 1913	1 80	
47447— " " " 4971-4885-4892, G. T. Pacific, W. V. & S. Ry., East Carolina Ry., April, 1914	33 19	
47420— " " " 4948, Arizona Eastern Ry., Mch., 1914	6 70	
48177— " " " 4993, Buffalo, Rochester & Pittsburg, April, 1914	2 70	
48183— " " " 4988, Atlanta, Birmingham & Atlantic Ry., April, 1914	2 70	
48189— " " " 5097, Reid, Newfoundland Co., July, 1914	6 75	
48460— " " " 5141-5190, Hawkinsville & Florida Southern Ry.	100 35	
48480— " " " 5241, Reid, Newfoundland Co., June, 1914	39 55	
48504— " " " 5314, St. Louis & San Francisco Ry., June, 1914	33 25	
49557—For amount of draft in favor of Supt. of Gov't Documents	6 30	
49823—Returned draft, 5443, Pennsylvania Co., July, 1914	21 75	
49622—Returned draft, 5566, Delaware, Lackawanna & Western Ry.	4 62	
49796—For amount of bill, Missouri Pacific Ry., deposited in error.	20 38	
49798—Returned draft, 5492, Galveston, Harrisburg & San Antonio Railway Company, August, 1914	7 05	
49917—Returned draft, 5355, Pere Marquette, July, 1914	8 13	
		$651 30

J. BEATH, CAR FOREMAN, NORTH BAY, ONT.

45507—Expenses, December, 1913	$3 20	
46344— " March, 1914	1 00	
48228— " June, 1914	1 00	
50107— " September, 1914	1 00	
50060— " October, 1914	3 85	
		$10 05

W. J. BAULDRY, TOWNSITE INSPECTOR, COCHRANE, ONT.

43839—Amount paid Municipal Corporation of Englehart, taxes on lots, 1913	$122 90	
43940—Expenses, November, 1913	8 00	
44486— " December, 1913	6 00	
45509— " January, 1914	13 00	
45840— " February, 1914	12 00	
46643— " March, 1914	12 00	
46958— " April, 1914	3 00	
47511— " May, 1914	7 00	
47588— " June, 1914	13 75	
48611— " July, 1914	10 00	
48772— " August, 1914	10 50	
50111— " September, 1914	8 00	
49860— " October, 1914	6 00	
		$232 15

BOSTON AND MAINE RAILROAD, BOSTON, MASS.

44855—Car repairs, bill D 11383	$0 44	
44238—Car service balance, October, 1913	23 40	
44408—Proportion of expenses incurred in securing Immigrant business, 1913	1 40	
45251—Car service balance, November, 1913	18 45	
45376—Car service balance, December, 1913	10 80	
45927—Car repairs, bill No. 11906	42	
46021—Car repairs, bill No. 12394	48	
46417—Ticket balance, January, 1914	1 11	
46550—Car repairs, bill No. D 13233	69	
46708—Car repairs, bill No. D 13573	46	
46770—Car service balance, February, 1914	5 85	
46856—Ticket balance, February, 1914	40 82	
47199—Car service balance, March, 1914	14 85	
47283—Ticket balance, March, 1914	32 13	
47459—Proportion expenses incurred in securing Immigrant business, April, 1914	1 04	
47957—Car repairs, bill No. D 14166	2 50	
47466—Car service balance, April, 1914	8 10	
48229—Car service balance, May, 1914	32 85	
48689—Proportion of expenses re securing immigration business, May, 1914	2 03	
48626—Proportion of expenses re securing immigration business, May, 1914	90	
48914—Proportion of expenses re securing immigration business, June, 1914	78	
49268—Car repairs, bill D 15478	78	
49743—Car service balance, July, 1914	23 85	
49805—Ticket balance, July, 1914	1 16	
49454—Car service balance, August, 1914	12 15	
49508—Ticket balance, August, 1914	26 14	
49704—Car repairs, bill D 319	3 80	
50094—Car service balance, Sept., 1914	10 35	
		$277 73

BANNER AND OSTROM, NORTH BAY, ONT.

44406—Supplies furnished private car Abitibi	$28 34	
44476—Supplies furnished private car "Sir James"	4 07	
45593—Butter	3 50	
45296—Butter furnished private car Abitibi	29 39	
47074—Groceries, April, 1914	4 95	
48693—Supplies, April, 1914, private car Abitibi	34 11	
48910—Supplies, May, 1914, private car Abitibi	8 96	
48379—Supplies, May, 1914, private car Abitibi	31 67	
		$144 99

J. B. BROUGHTON, UNO PARK, ONT.

49919—Loss account mirror broken in transit, claim No. 8515	$5 00	
		$5 00

T. A. BRITTAIN, THORNLOE, ONT.

44245—Donation, heifer alleged killed, Thornloe, Ont., Oct., 1913	$20 00	
44831—Telegraph poles	20 00	
50437—Switch sets	179 18	
		$219 18

R. BLAND, WATER SERVICE INSPECTOR, NORTH BAY, ONT.

43953—Expenses, October, 1913	$6 30
44208— " November, 1913	13 85
44744— " December, 1913	16 30
45505— " January, 1914	16 40
45844— " February, 1914	13 90

R. Bland, Water Service Inspector, North Bay, Ont.—*Continued.*

46583—Expenses, March, 1914	$15 60	
46960— " April, 1914	16 65	
47623— " May, 1914	17 20	
48230— " June, 1914	16 15	
48768— " July, 1914	19 45	
50113— " September, 1914	10 55	
49862— " August, 1914	17 30	
50056— " October, 1914	12 35	
		$192 00

Burrow, Stewart, and Milne Co., Hamilton, Ont.

44715—Scales	$19 31	
44838—Castings	14 00	
44900—Tickets	13 75	
46291—Scales	19 31	
47076—Scale tickets	13 75	
48519—Baggage truck	44 10	
49044—Scale tickets	6 88	
		$131 10

Bouvier and Hutchinson, Toronto, Ont.

45682—Envelopes	$11 25	
		$11 25

Burrows Adding Machine Company, Detroit, Mich.

44784—Adding machine, No. 170883	$375 00	
45455—Attention to machine No. 105879, from Sept. 24th to Jan. 21st, 1914	2 60	
45763—Paper	1 60	
48695—Attention to machine No. 105879, from Jan. 21st to July 21st, 1914	4 00	
		$383 20

The Bristol Company, Waterbury, Conn.

46697—Electrical material	$10 00	
		$10 00

Beardmore Belting Co., Toronto, Ont.

44291—Belting	$41 40	
44536— "	16 93	
46445— "	16 93	
46346—Harness leather	5 72	
47024—Belting	5 29	
47121—Leather	6 43	
47573—Laces	8 80	
47668—Belting	14 31	
49081—Belt laces	8 80	
48568—Belting	44 71	
49635—Belting	7 45	
		$176 77

Black and Wager M.P., 8½, T. & N. O. Ry.

44233—Telegraph poles	$1 60	
44233—Telegraph poles	9 75	
46759—Slabs	28 50	
47795— "	147 50	
49073— "	37 00	
49046— "	37 00	
		$261 35

BUFFALO AND SUSQUEHANNA COAL & COKE CO., BUFFALO, N.Y.

44487—Coal as per statement attached to Voucher	$5,514 63		
44833— " " " "	6,151 43		
44835— " " " "	1,112 64		
44472— " " " "	4,289 07		
44474— " " " "	3,608 24		
44514— " " " "	4,108 87		
44516— " " " "	4,429 92		
45777— " " " "	9,716 81		
45680— " " " "	5,010 17		
46637— " " " "	7,101 94		
47072— " " " "	4,292 92		
47797— " " " "	1,045 17		
48138— " " " "	7,084 55		
49069— " " " "	12,865 02		
48878— " " " "	5,065 21		
50170— " " " "	13,811 36		
50371— " " " "	8,630 60		
		$103,829 55	

BUSINESS SYSTEMS, LIMITED, TORONTO, ONT.

44289—Printing forms	$55 20	
46693—Printing forms	9 66	
46898—Index sheets	6 00	
47078—Printing telegram forms	23 00	
47824— " forms	47 87	
49075— " "	9 15	
49042— " "	23 00	
50177—C 70 covers rebound	6 40	
50210—Printing forms	51 98	
		$232 26

CHAS. BATTLEY, AIR BRAKE INSPECTOR, NORTH BAY, ONT.

43951—Expenses, September and October, 1913	$3 80	
44699— " November, 1913	2 90	
45842— " January and February, 1914	4 85	
46585— " March, 1914	1 35	
47590— " June, 1914	7 15	
48671— " July, 1914	2 05	
		$22 10

BANGOR AND AROOSTOOK RAILROAD, BANGOR, ME.

44031—Car service balance, September, 1913	$16 65	
44240— " " " October, 1913	15 75	
45253— " " " November, 1913	3 15	
45378— " " " December, 1913	2 25	
47201— " " " March, 1914	10 35	
		$48 15

BALTIMORE & OHIO, CHICAGO TERMINAL RAILROAD, CHICAGO, ILL.

46034—Car repairs, bill No. 7186	$2 07	
48010— " " bill No. 7801	7 34	
49708— " " bill No. 8553	6 00	
		$15 41

BURROWS & PARMELEE, NORTH BAY, ONT.

47816—Moulding, shades	$3 18	
		$3 18

BRANTFORD ROOFING CO., LTD., BRANTFORD, ONT.

44786—Roofing	$67 68	
47822— "	16 50	
50227— "	66 30	
		$150 48

BROWN, BOGGS, LIMITED, HAMILTON, ONT.

49071—Shears	$6 60	
		$6 60

H. BEDFORD, KRUGERDORF, ONT.

48720—In full and final settlement of all claims and demands *re* alleged damage to property by fire, June, 1914	$50 00	
		$50 00

O. E. BOWMAN, THORNLOE, ONT.

49665—Loss account, shortage on bag oats and freight claim 8722	$5 85	
		$5 85

R. BUNYAN, NORTH BAY, ONT.

45761—Hay	$115 35	
46288— "	4 92	
46468— "	2 47	
46977— "	2 55	
47077—Loss, oats, account damage in transit, claim 7474	2 86	
47322—Overcharge in weight on hay, claim 8445	40	
47814—Hay	162 52	
49406—Overcharge in weight on hay, claims 8489, 8788	2 31	
49578—Overcharge in weight on hay, claim 8790	33	
		$293 71

JOS. H. BOWMAN, SPECIAL CONSTABLE, COBALT, ONT.

49881—Expenses, August, September, 1914	$3 55	
		$3 55

S. M. BRASHER, RELIEVING AGENT, NORTH BAY, ONT.

47570—Expenses, May and June, 1914	$28 00	
48770— " August, 1914	14 00	
50109— " September, 1914	27 00	
50364— " October, 1914	27 00	
		$96 00

BOSTON & ALBANY RAILROAD, NEW YORK, N.Y.

45677—Car repairs, bill No. 7681 and 7682	$4 18	
46032—Value of scrap derived from B. & A. car 32009	110 00	
46546—Car repairs, bill 914	6 78	
47959— " " bill 2229	3 22	
49313— " " bill 3788	1 37	
49706— " " bill 6096	2 68	
		$128 23

BENOIT & GAUDETTE, NUSHKA, ONT.

48184—Ties	$720 00	
		$720 00

BARRETT MANUFACTURING CO., NEW YORK, N.Y.

49747—Car service balance, July, 1914	$0 77	
49458— " " " September, 1914	77	
		$1 54

BUREAU OF EXPLOSIVES, NEW YORK, N.Y.

43975—B. E. Accident Bulletin No. 21	$4 50	
44239—Assessment No. 14, ordered by Executive Committee for half year	82 31	
45294—Copies of B. E. Accident Bulletin No. 22	4 50	
46404—Copies of B. E. Accident Bulletin No. 20	3 00	

BUREAU OF EXPLOSIVES, NEW YORK, N.Y.—*Continued.*

47149	Copies of B. E. Accident Bulletin No. 23..... Assessment No. 15, ordered by Executive Committee for six months, to October 31st, 1914	$115 69	
48699	—Copies of B. E. Phamphlet No. 6.....	15 00	
48908	— " B. E. Phamphlet No. 6.....	3 00	
50174	— " B. E. Bulletin No. 24.....	4 50	
50330	—Membership for six months ending April 30th, 1915.....	119 85	
	—Copies B. E. Accident Bulletin No. 25.....		
			$352 35

BARBER ELLIS, LTD., TORONTO, ONT.

44652	—Printing forms.....	$36 20	
44782	— " "	15 00	
47579	—Envelopes	23 33	
47793	— "	2 50	
49036	—Printing forms.....	34 94	
50223	—Envelopes	40 00	
50164	— "	26 83	
			$178 80

BERLIN FELT BOOT CO., BERLIN, ONT.

47818	—Felt	$7 60	
			$7 60

JOHN BOURKE & CO., NORTH BAY, ONT.

47812	—Building material	$122 20	
50221	—Paristone.....	27 80	
49894	—Building material and coal tar.....	11 63	
			$161 63

JNO. L. BUCHER, IROQUOIS FALLS, ONT.

48330	—Loss four bottles liquor, broken in transit, claim 8432.	$4 20	
			$4 20

C. BERNSTEIN, ENGLEHART, ONT.

48332	—Overcharge in weight on potatoes, claim 8452.....	$3 63	
49667	— " " " on fruit and vegetables, claim 8494	14 96	
			$18 59

J. C. BOGART, THORNLOE, ONT.

44831	—Switch sets	$22 51	
46528	—For S. ½ Lot 1, Con. 1	220 80	
49937	—Lumber.....	264 00	
			$507 31

D. W. BOSELEY, CHICAGO, ILL.

45688	—Weather stripping.....	$12 00	
49896	— " "	12 00	
			$24 00

BEAVER CONSOLIDATED MINES, TORONTO, ONT.

45178	—Refund demurrage assessed on car, claim 8108	$4 90	
			$4 90

THE BINKLEY COMPANY, NEW LISKEARD, ONT.

45062	—Overcharge in weight, mattresses, claim 7739	$2 84	
44104	— " " " canned goods, claim 6559	6 58	
48334	—Loss account, shortage, smoked meat, claim 6988.....	32 29	
			$41 71

MATT BOIVIN, IROQUOIS FALLS, ONT.

44233—Ties	$2,384 12	
44639—Lumber	103-76	
44470—Ties	1,543 70	
45591—Lumber	316 32	
45144—Ties	2,116 00	
46577— "	418 43	
48609— "	3,707 15	
49077—Lumber	318 67	
48868—Ties	3,791 51	
		$14,699 66

W. BURNETT, NUSHKA, ONT.

46577—Ties	$50 07	
		$50 07

J. A. BRILLINGER, NEW LISKEARD, ONT.

45180—Amount realized on shipment of cabbage damaged by frost, claim 8138	$6 03	
		$6 03

BLACK RIVER LUMBER CO., MATHESON, ONT.

44831—Ties	$70 38	
		$70 38

N. BUSS, NUSHKA, ONT.

45449—Ties	$12 60	
46269— "	128 42	
46635— "	11 85	
46635— "	62 80	
		$215 67

BIRMINGHAM SOUTHERN R. R. CO., BIRMINGHAM, ALA.

44966—Car repairs, bill 10193, July 29th, 1913	$4 62	
		$4 62

BELT RAILWAY COMPANY OF CHICAGO, ILL.

46019—Car repairs, bill 467	$0 66	
49317— " " " 545	1 95	
49264— " " " 416	54	
		$3 15

J. BERNATCHES, COCHRANE, ONT.

46522—Ties	$176 26	
		$176 26

F. BROWN, GOLD LAND P.O., ONT.

44831—Ties	$263 91	
		$263 91

G. BURTON, MATHESON, ONT.

46199—Ties	$20 06	
46749— "	328 78	
46522— "	161 20	
		$510 04

R. BRILLINGER, EARLTON, ONT.

45441—For unclaimed wages, man No. 6, payroll No. 164, June, 1913	$28 90	
		$28 90

J. Burns, Earlton, Ont.

44470—Ties	$7 53	
		$7 53

James Boyer, Lineman, North Bay, Ont.

43949—Expenses, October, 1913	$8 77	
		$8 77

C. F. Brown, Stenographer, North Bay, Ont.

46563—Expenses, March, 1914	$1 50	
48613— " April and July, 1914	2 00	
		$3 50

Beamish & Smith, North Bay, Ont.

44393—Uniforms	$48 00	
44641— "	27 00	
44643— "	129 00	
44898— "	54 00	
45779— "	126 00	
45686— "	24 00	
46763— "	22 50	
		$430 50

J. R. Booth, Ottawa, Ont.

43691—Siding rebate, Latchford siding, August 18th, 1912	$36 00	
45159—Overcharge on car horses, claim 7904	33 67	
46174—Loss, sugar damaged in transit, claim 7914	96	
48233—Loss account, damage to flour grindstones, claim 7518	4 10	
		$74 73

H. Beatty, Iroquois Falls, Ont.

46635—Ties	$130 69	
		$130 69

Brinton Carpet Co., Ltd., Peterborough, Ont.

46695—Rug	$58 00	
		$58 00

J. W. Broughton, Uno Park, Ont.

44831—Ties	$4 59	
		$4 59

Chas. Brigden, Bonfield, Ont.

43922—Work performed, Iroquois Falls' branch, Certificate No. 1, to November 1st, 1913	$1,179 02	
44060—Fencing and clearing Iroquois Falls' branch, Certificate No. 2	1,006 21	
44470—Ties	36 03	
48546—Camp supplies	89 44	
		$2,310 70

H. Berger, Iroquois Falls, Ont.

44831—Ties	$40 20	
45133— "	37 67	
45449— "	184 71	
46269— "	49 26	
46749— "	17 81	
46882— "	18 30	
46882— "	25 05	
47220— "	8 50	
		$381 50

L. Brewster, Toronto, Ont.

43925—For advance on expenses, trip Sir James Whitney, to Washington, D.C.	$50 00	
43929—Expenses, October, 1913	1 50	
45572—Disbursements in connection with trip Sir James P. Whitney, Washington and New York, November, December, 1913, January, 1914	27 13	
46600—Expenses, April, 1914	75	
		$79 38

Benjamin Electric Mfg. Co. of Canada, Toronto, Ont.

44579—Electrical material	$24 12	
		$24 12

Bate & Company, Ottawa, Ont.

43927—Supplies furnished car Abitibi, October 29th, 1913	$12 33	
		$12 33

British Columbia Railway Company, New Westminster, B.C.

44244—Car service balance, October, 1913	$0 90	
45257— " " " November, 1913	1 20	
		$2 10

A. W. Brown, Relieving Agent, North Bay, Ont.

44381—Expenses, October, 1913	$14 00	
45846— " February, 1914	7 00	
		$21 00

Beaumont and Great Northern, Onalaska, Tex.

45261—Car service balance, November, 1913	$0 90	
		$0 90

Wm. Burns, Iroquois Falls, Ont.

45133—Ties	$26 83	
45449— "	25 05	
45449— "	13 25	
45144— "	79 00	
46522— "	37 43	
		$181 56

James Burns, Iroquois Falls, Ont.

45449—Ties	$173 39	
46749— "	86 88	
46882— "	83 15	
46882— "	43 70	
		$387 12

G. Barone, Boiler Washer, North Bay Junction, Ont.

44383—Expenses, October, 1913	$2 35	
		$2 35

Samuel W. Brown, Claybelt, P.O., Ont.

44831—Ties	$366 88	
		$366 88

Fred Brown, Iroquois Falls, Ont.

46749—Ties	$205 39	
46522— "	120 58	
46658— "	12 10	
48173— "	50 00	
50437— "	230 60	
		$618 67

BRITISH AMERICAN OIL CO., LTD., TORONTO, ONT.

45259—Car service balance, November, 1913		$1 54	
43751— " " " September, 1913		77	
44232— " " " October, 1913		77	
			$3 08

BEACON CONSOLIDATED MINES, ELK LAKE, ONT.

43865—Refund of main line loading charge account, claim 7550.		$5 00	
			$5 00

R. T. BROONER, HEASLIP, ONT.

43896—Donation *re* heifer alleged killed, M.P. 132½, October 8th, 1913		$20 00	
			$20 00

J. AND A. BOOKALAM, COBALT, ONT.

44102—Loss account, shortage, socks in transit, claim No. 7589..		$2 15	
			$2 15

WM. A. BOYD, NEW LISKEARD, ONT.

44927—Loss, articles from box H.H. goods, pilfered with C.P.R., claim No. 7718		$10 00	
			$10 00

BUCOVETSKY BROS., TIMMINS, ONT.

46113—Loss account, damage to barrel herrings and freight, claim 7973		$4 45	
48337—Loss three boxes oranges and freight on same, claim 6893		13 80	
			$18 25

BERNARD & SONS, COCHRANE, ONT.

45116—Ice		$255 00	
			$255 00

J. J. BUTLER, HAILEYBURY, ONT.

46115—Loss account, shortage case rubbers, claim 7679		$14 50	
			$14 50

W. E. BURROWS, NORTH BAY, ONT.

46172—Loss account, damage to stove and table, claim 7325		$3 00	
			$3 00

BUFFALO MINES, LTD., COBALT, ONT.

46176—One pulley broken in transit, claim 7280		$8 52	
46260—Loss, oil, account damage to barrels in transit, claim 7268		16 15	
			$24 67

F. H. BAXTER, COBALT, ONT.

46180—Refund account, charges paid twice		$1 91	
			$1 91

R. G. BOAST, RESIDENT ENGINEER, NORTH BAY, ONT.

45483—Expenses, January, 1914		$6 00	
45574— " February, 1914		8 00	
46581— " March, 1914		47 75	
47261— " April, 1914		10 25	
47586— " June, 1914		12 75	
48774— " July and August, 1914		23 00	
			$107 75

J. Brien, Nushka, Ont.

46269—Ties	$105 90	
47443— "	52 05	
		$157 95

J. L. Beaton, Cobalt, Ont.

49927—Labor and material supplied papering agent's house, Cobalt, July, 1914	$34 14	
		$34 14

A. Bronsseau, North Bay, Ont.

46579—Expenses, March, 1914	$3 35	
		$3 35

F. N. Burt Company, Ltd., Toronto, Ont.

45765—Forms	$28 27	
47577—Books	98 75	
50225— "	28 49	
48563— "	56 25	
		$211 76

British Columbia Electric Ry., Vancouver, B.C.

46036—Car repairs, bill No. 405	$1 20	
		$1 20

James Bigrow, Nushka, Ont.

46199—Ties	$96 08	
47220— "	47 30	
		$143 38

W. Brosseau, Machinist, North Bay, Ont.

46565—Expenses, March, 1914	$1 50	
		$1 50

D. Burgerhaudt, Porquis Junction, Ont.

47147—Board supplied, May, 1914, W. J. Kelly	$9 80	
		$9 80

T. Boulanger, Nushka, Ont.

46749—Ties	$72 23	
48184— "	4 74	
		$76 97

Rev. Father H. D. J. Brosseau, Haileybury, Ont.

48724—Promotors' proportion St. Anne de Beaupre excursion, June 17th, 1914	$317 20	
		$317 20

The Robt. Bishop Mfg. Co., Chicago, Ill.

47080—Standard wick	$4 50	
		$4 50

P. D. Boyer Mining Co., Haileybury, Ont.

48091—Loss account, damage to cream, claim No. 8600	$1 21	
48424—Loss account, shortage tobacco in transit, claim No. 8598.	2 63	
		$3 84

ACTON BURROWS, LTD., TORONTO, ONT.

47449—Subscriptions, *Railway and Marine World*, January 1st, 1914, to December, 1914 ..... $26 00 — $26 00

THE BUDA CO., HARVEY, ILL.

47575—Crank clutch ..... $1 44 — $1 44

BIRD-ARCHER CO., NEW YORK, N.Y.

47581—Chemicals ..... $18 75 — $18 75

BUFFALO BRAKEBEAM CO., NEW YORK, N.Y.

47583—Fulcrums ..... $25 00 — $25 00

T. BOULANGER, NUSHKA, ONT.

47731—Ties ..... $36 10 — $36 10

JAS. BELL, MATTAWA, ONT.

47318—Ties ..... $10 00 — $10 00

R. H. BROWN CO., LATCHFORD, ONT.

47320—Loss, case R. oats and S. wheat shortage, claim 8329.... $8 04
49663—Loss account, shortage one box creamery butter, claim No. 8135 ..... 15 25 — $23 29

LOUIS H. BARTHE, SESIKINIKA, ONT.

48335—Overcharge in rate on logs, claim No. 8667 ..... $21 76 — $21 76

BRITISH WHIG PUB. CO., LTD.

48377—Advertisement, homeseekers' excursion ..... $6 00 — $6 00

BRANTFORD COURIER, LTD., BRANTFORD, ONT.

48403—Advertisement, homeseekers' excursion ..... $3 36 — $3 36

THE BURFORD ADVANCE, BURFORD, ONT.

48405—Advertisement, homeseekers' excursion ..... $1 75 — $1 75

BEE PRINTING HOUSE, ATWOOD, ONT.

48407—Advertisement, homeseekers' excursion ..... $1 00 — $1 00

THE BOWMANVILLE NEWS, BOWMANVILLE, ONT.

48409—Advertisement, homeseekers' excursion ..... $1 75 — $1 75

THE BANCROFT TIMES, BANCROFT, ONT.

48449—Advertisement, homeseekers' excursion $1 00 $1 00

THE BERLIN DAILY TELEGRAPH, BERLIN, ONT.

48561—Advertisement, homeseekers' excursion $8 00 $8 00

BRADFORD WITNESS, BRADFORD, ONT.

48892—Advertisement, homeseekers' excursion $2 00 $2 00

W. BENTLEY, IROQUOIS FALLS, ONT.

48691—Boards supplied, July, 1914 ..... $6 80 $6 80

THE BROCKVILLE TIMES, BROCKVILLE, ONT.

48803—Advertisement, homeseekers' excursion $3 24 $3 24

THE BRIGHTON ENSIGN, BRIGHTON, ONT.

48805—Advertisement, homeseekers' excursion $1 40 $1 40

BANNER AND TIMES PRINTING OFFICES, BRAMPTON, ONT.

48807—Advertisement, homeseekers' excursion $1 68 $1 68

THE BOLTON ENTERPRISE, BOLTON, ONT.

48809—Advertisement, Homeseekers' excursion 1 92 $1 92

BARRIE SATURDAY MORNING, BARRIE, ONT.

48823—Advertisement, homeseekers' excursion $1 00 $1 00

BRIGDEN PROGRESS, BRIGDEN, ONT.

48825—Advertisement, homeseekers' excursion $0 75 $0 75

BANNER PUBLISHING CO., LISTOWEL, ONT.

48889—Advertisement, homeseekers' excursion $2 70 $2 70

BEAVERTON EXPRESS, BEAVERTON, ONT.

48890—Advertisement, homeseekers' excursion $1 50 $1 50

L. BROWN, CAR REPAIRER, NORTH BAY, ONT.

50062—Expenses—October, 1914 ..... $3 00 $3 00

H. A. BINCH, KENEBECK, ONT.

50172—Work performed cleaning Kenabeck station grounds. Progress certificate No. 1, final $385 00 $385 00

CANADIAN PACIFIC RAILWAY COMPANY, MONTREAL.

43639—Claims as per statement	$342 08
43779— " " "	175 63
43817—Account freight settlement for week ended Nov. 7th, 1913	1,367 90
43861— " " " " " Nov. 14th, 1913	1,105 25
44035—Car service balance, September, 1913	1,481 19
44135—Ticket balance, September, 1913	2,678 35
44145—Account freight settlement week ended Nov. 21st, 1913	602 20
44151—Tickets Buffalo to Washington and return, Nov. 29th, 1913	54 60
44163—Settlement of claims Nos. 7260 and 7618	2 90
43842—Overcharge in weight, claims 7103, 7457, 6784	86 02
44353—Account time lineman watching blasting east of N.B.	37 08
44355—Supplies private car "Abitibi," September, 1913	20 90
44411—Car repairs, July, 1912, to Sept. 1913, bill No. 301682	84 47
43898—Account freight settlement, week ended Dec. 7th, 1913	2,130 14
44467—Account freight settlement, week ended Nov. 30th, 1913	3,921 09
43956—One ticket New York and return and drawing-room, Dec. 18th, 1913	31 35
43984—Freight settlement, week ended Dec. 14th, 1914	5,307 12
44064— " " " " Dec. 21st, 1913	4,669 16
44769—Interline freight balance, November, 1913	1,933 36
44106—Claims as per statement attached to voucher	84 20
44899—Terminal charges, November, 1913, bill 304454	646 67
44246—Car service balance, Oct., 1913	1,683 47
44384—Ticket balance, October, 1913	1,846 82
44398—Freight settlement, week ended Dec. 31st, 1913	8,764 21
44410—Proportion of expenses printing tickets, bill 304078	13 50
44901—Account freight settlement, week ended Jan. 7th, 1914	3,266 09
44989—Overcharge in weight, cross-arms, etc., claims 140616, 189956, 135037	43 93
45007—Account freight settlement, week ended Jan. 14th, 1914	1,775 18
45085—Account freight settlement, week ended Jan. 21st, 1914	2,676 60
44706—Account interline freight balance, December, 1913	4,245 09
44918—Car repairs, bill No. 278884, Nov., 1912, Sept. 30th, 1913	226 45
44938—Terminal charges, December, 1913, bill 305976	641 82
45020—Car repairs, bill 303080, April to Oct., 1913	32 06
45161—Claims as per statement attached to voucher	64 47
45263—Car service balance, November, 1913	814 17
45415—Ticket balance, November, 1913	3,939 55
45439—Account freight settlement, week ending Jan. 31st, 1914	4,176 65
45060—Account freight settlement, week ended Feb. 7th, 1913	1,917 72
45064—Claims as per statement attached to voucher	200 52
45120—Account freight settlement, week ended Feb. 14th, 1913	1,051 34
45627—Terminal charges, month of January, 1914	690 80
45124—Account freight settlement, week ending Feb. 21st, 1913	2,217 99
45679—Gas supplied, September and November, 1913	97 82
45194—Claims as per statement attached to voucher	109 80
45254—Account frt. settlement, week ended Feb. 28th, 1913	2,584 74
45306—Expenses in connection with private car "Abitibi" at Ottawa, October, 1913	57 18
45382—Car service balance, December, 1913	1,406 05
45498—Ticket balance, December, 1913	7,406 27
46027—Car repairs, bills Nos. 304543, 305269	34 33
46103—Freight settlement for week ended March 7th, 1914	2,978 93
46117—Claims as per statement attached to voucher, Feb. to Oct. 10th, 1913	35 30
46183—Account freight settlement, week ended March 14th, 1914	3,212 95
45628—Gas supplied cars at North Bay Oct., 1913, December, 1913	109 10
46201—Account freight settlement, week ended March 21st, 1914	2,654 17
45714—Terminal charges, month of February, 1914	656 02
46038—Car repairs, bill No. 305709	12 27
46283—Account freight settlement, week ended March 31st, 1914	4,222 44
46182—Overcharge in weight, silver ore, claims Nos. 7873, 7949, 7622-27, 7839	73 25
46331—Car service balance, January, 1914	1,587 55
46419—Ticket balance, January, 1914	2,730 42

CANADIAN PACIFIC RAILWAY COMPANY, MONTREAL.—*Continued.*

46256—Account freight settlement for week ended April 7th, 1914	$2,805 87
46276—Claims as per statement attached to voucher	52 00
46711—Car repairs, bill 306417, April 24th to Dec. 5th, 1913	125 91
46332—Account freight settlement, week ended April 7th, 1914	2,425 25
46340—Account freight settlement, week ended April 21st, 1914	1,826 79
46418—Train supplies Nov., 1913, and gas Jan., 1914	53 68
46478—Claims as per statement attached to voucher, Aug. 5th to Oct. 14th, 1913	47 61
46554—Car repairs, bill No. 307348, Nov. 13th to Jan. 23rd, 1914	32 21
46660—Freight settlement, week ended April 30th, 1914	3,036 93
46742—Car repairs, bills 307896, 307914, 308503, 308423, Jan. and Feb., 1914	123 64
46774—Car service balance, February, 1914	1,575 45
46858—Ticket balance, February, 1914	2,165 06
46941—Terminal charges, March, 1914, bill No. 309204	774 48
46983—Claims as per statement attached to voucher	117 77
47019—Freight settlement for week ended May 7th, 1914	1,630 09
47042—Account interline freight balance, April, 1914	1,650 71
47082—Air brake part, bill 308212	9 90
47021—Freight settlement for week ended May, 14th, 1914	1,922 08
47067— " " " " " 21st, 1914	1,387 94
47079—Overcharge in weight, lumber, silver ore, claims Nos. 7475, 7772	30 41
47151—Gas supplied cars at North Bay, September, 1913, C.P.R. tariff books for year 1914	50 63
47203—Car service balance, March, 1914	2,472 89
47285—Ticket balance, March, 1914	4,221 87
47307—Account freight settlement, week ended May 31st, 1914	3,429 58
47286—Terminal charges, April, 1914, bill 310780	655 84
47288— " " as per statement attached to voucher	4,846 39
47377—Proportion of terminal charges due accounts tickets sold to immigrants, May, 1912	562 62
47681—Interline freight balance, May, 1914	5,024 41
47785—Terminal charges, May, 1914	670 61
47967—Car repairs, bills Nos. 309106, 308963, 309692	75 02
47316—Account freight settlement, week ended June 7th, 1914	4,409 31
47364— " " " " " " 14th, 1914	2,971 81
47434— " " " " " " 21st, 1914	2,224 86
47472—Car service balance, April, 1914	1,678 52
47538—Ticket balance, April, 1914	2,375 75
47552—Account freight settlement, week ended June 30th, 1914	798 96
47712—Gas supplied cars at North Bay, Feb., March, April, 1914; proportion terminal charges, account tickets sold European immigrants, Jan., Feb., 1914	275 70
48014—Car repairs, bills Nos. 309591-606-650-648	123 61
48180—Account interline freight balance, June, 1914	1,330 94
48302—Terminal charges, June, 1914, bill No. 312891	667 17
48099—Claims as per statement attached to voucher	659 78
48149—Account freight settlement, week ended July 7th, 1914	739 51
48185— " " " " " " 14th, 1914	583 02
48233—Car service balance, May, 1914	1,583 59
48345—Claims as per statement attached to voucher	126 39
48507—Account freight settlement, week ended July 31st, 1914	1,242 84
48605—Account interline freight balance, July, 1914	3,587 91
48630—Car service balance, June, 1914	1,609 20
49463—Car repairs, bill 311353-352, 312439	74 39
49465—Terminal charges, July, 1914	633 20
48326—Freight settlement, week ended August 7th, 1914	1,060 11
48336—Overcharges in weights and rates. See claims Nos. 5228, 8478, 8262, 8375	21 57
48426—Loss account, damage to H. H. goods, claims 8693, 8072	9 40
48454—Account freight settlement, week ended Aug., 1914	1,493 70
48470—Account freight settlement, week ended Aug. 21st, 1914	2,286 14
48506—Account freight settlement, week ended Aug. 31st, 1914	937 63
48704—Ticket balance, June, 1914	4,333 13
48856—Account interline freight balance, August, 1914	1,883 63

CANADIAN PACIFIC RAILWAY COMPANY, MONTREAL.—*Continued.*

48920—Gas supplied cars at North Bay, May, 1914	$57 54	
49056—Ratchet wheels, black engine finish	6 49	
49364—Terminal charges, August, 1914	644 18	
49270—Car repairs, bills 312874, 313106, 313122	42 47	
49272—Car repairs, bill 306873	28 95	
49471—Account freight settlement, week ended Sept. 21st, 1914	738 72	
49479—Claims as per statement attached to voucher	194 30	
49563—Account freight settlement, week ended Sept. 7th, 1914	1,213 18	
49565— " " " " " " 14th, 1914	1,652 08	
49627—Freight settlement, week ended Sept. 30th, 1914	2.241 49	
49749—Car service balance, July, 1914	1,740 13	
49807—Ticket balance, July 1914	3,757 69	
49955—Car repairs, bills 314485, 313747, 314045	10 20	
50017—Gas supplied cars at North Bay, July, 1914	19 75	
50105—Interline freight balance, September, 1914	3,071 09	
50397—Proportion of terminal charges on tickets sold by agents March, April, May, 1914	82 00	
50435—Terminal charges, September, 1914	654 35	
49374—Account freight settlement, week ended Oct. 7th, 1914	1,716 04	
49376— " " " " " " 14th, 1914	1,473 92	
49408—Claims as per statement attached to voucher	717 85	
49460—Car service balance, August, 1914	1,728 00	
49510—Ticket balance, August, 1914	6,887 50	
49526—Account freight settlement, week ended Oct. 21st, 1914	1,219 04	
49530—Loss account, damange to show cases in transit, claim 4701	8 46	
49708*a*—Car repairs, bills 314938, 315179, 314843, 315221, 315150	148 93	
49804—Account freight settlement, week ended Oct. 31st, 1914	2,287 64	
49822—Rental C.P.R. coaches 163, 255, 2450, 2455, July 12th and 14th, 1914	48 00	
50098—Car service balance, Sept., 1914	1,599 01	
50136—Ticket balance, Sept., 1914	3,368 50	
50382—Account interline freight balance, October, 1914	228 98	
50388—Gas supplied cars at North Bay, June, 1914	37 57	
50440—Terminal charges, October, 1914	657 55	
50448—Telegraph interchange from Nov., 1913, to April, 1914	3,690 46	
50448*a* & *b*—Telegraph interchange from Nov., 1913, to April, 1914	6,043 56	
		$228,559 71

CHICAGO & NORTH WESTERN RAILWAY, CHICAGO, ILL.

44869—Car repairs, bill No. 100265	$23 77	
45933— " " 110119	4 79	
46084— " " 10103	93	
46568— " " 30044	11 94	
46732— " " 20253	16 21	
46784—Car service balance, February, 1914	10 10	
47999—Car repairs, bill No. 30332	98	
49327— " " 50042	16 00	
48860— " " 60141	68 25	
49809—Ticket balance, July, 1914	22 55	
49965—Car repairs, bill No. 71941	22 29	
49712— " " 80252	31 07	
		$288 88

CANADIAN NORTHERN ONTARIO RAILWAY, TORONTO, ONT.

44248—Car service balance, October, 1913	$3 60	
49751—Car service balance, July, 1914	8 55	
		$12 15

C. H. CULVER, KELSO, ONT.

44831—Ties	$92 19	
		$92 19

CUMBERLAND VALLEY RAILROAD, CHAMBERSBURG, PA.

46722—Car repairs, bill 18259, April-May 30th, 1913	$0 35	
47482—Car service balance, April, 1914	2 25	
48239— " " " May, 1914	6 30	
48640— " " " June, 1914	4 05	
49274—Car repairs, bill No. 19259	1 52	
		$14 47

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS RAILWAY, CINCINNATI, OHIO.

44425—Car repairs, bill No. 79286, August, 1913	$0 44	
45417—Ticket balance, November, 1913	35	
46560—Car repairs, bill 91708	1 27	
47977— " " 93871	10 16	
48032— " " 96474	2 91	
49331— " " 98861	7 59	
49716— " " 3913	1 85	
		$24 57

CHESAPEAKE AND OHIO RAILWAY, RICHMOND, VA.

44049—Car service balance, September, 1913	$26 55	
44266— " " " October, 1913	112 05	
44970—Car repairs, bill No. 328940	5 84	
45279—Car service balance, November, 1913	90 00	
45390— " " " December, 1913	219 15	
46090—Car repairs, bill No. 332396, July 12th to Dec. 5th, 1913..	5 29	
46339—Car service balance, January, 1914	162 45	
46649—Car repairs, bill 333693, Sept., 1913, to Jan., 1914	2 36	
46738— " " " 334992, Feb., 1914	1 83	
46782—Car service balance, February, 1914	32 85	
47211— " " " March, 1914	49 50	
47474— " " " April, 1914	38 10	
48016—Car repairs, bill 338024, April	26 91	
48235—Car service balance, May 1914	72 45	
48632— " " " June, 1914	57 40	
49341—Car repairs, bills 340556-340169, May and June, 1914....	4 02	
49753—Car service balance, July, 1914	20 05	
49464— " " " August, 1914	24 30	
49718—Car repairs, bill No. 342839	2 37	
		$953 47

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY, CHICAGO, ILL.

44867—Car repairs, bill No. 133266, June to Sept., 1913	$29 50	
45500—Ticket balance, December, 1913	57 00	
45935—Car repairs, bill 134515	2 89	
45967— " " bill 135424	24 52	
46082— " " bill 136631	28 39	
46566— " " bills 137340, 138052	4 24	
46776—Car service balance, February, 1914	20 35	
47287—Ticket balance, March, 1914	8 35	
47985—Car repairs, bill No. 139195	38 63	
48020— " " " 140361	4 69	
48307—Ticket balance, May, 1914	17 20	
49337—Car repairs, bill 141311	11 68	
49280— " " " 142138	9 30	
49720— " " " 143329	23 61	
		$280 35

CHICAGO, INDIANA AND SOUTHERN RAILROAD, CLEVELAND, OHIO.

44974—Car repairs, bill 60054, October, 1913	$8 80	
47987— " " " 64832	92	
49961— " " " 68369	12 92	
		$22 64

CENTRAL VERMONT RAILWAY, ST. ALBANS, VT.

44051—Car service balance, September, 1913	$94 50	
44268— " " " October, 1913	73 80	
44968—Car repairs, bill No. 10-13-854, July-Sept., 1913	4 15	
45392—Car service balance, December, 1913	12 15	
45961—Car repairs, bill No. 11-13-649	2 86	
46042— " " " No. 12-13-643	7 83	
46647— " " " No. 1-14-653	9 67	
46740— " " " No. 2-14-538	4 08	
47291— " " " No. 3-14-564	6 55	
47971— " " " No. 10656	10 37	
47476—Car service balance, April, 1914	1 35	
48237— " " " May, 1914	90	
48634— " " " June, 1914	90	
49466— " " " August, 1914	7 65	
		$236 76

CHICAGO, INDIANAPOLIS AND LOUISVILLE RAILWAY, CHICAGO, ILL.

44978—Car repairs, bill R 6262	$1 61	
46037— " " " R 6465	4 44	
46080— " " " R 6668	15 17	
48034— " " " R 7495	1 20	
48097—Loss account, damage to stone in transit, claim 4900	2 00	
		$24 42

CANADIAN ALLIS-CHALMERS, LTD., TORONTO, ONT.

47858—Steel rope	$28 90	
		$28 90

H. CARNEY, PIPEFITTER, NORTH BAY, ONT.

50064—Expenses, October, 1914	$8 75	
		$8 75

AGENT T. AND N. O. RAILWAY, COBALT STATION, ONT.

43679—Outstanding account, error in billing claim No. 7434	$63 02
43681— " " shipment short, claim No. 7526	58 32
43745— " " " " " " 7448	6 45
43871— " " demurrage caused by error in billing.	7 00
43832— " " shortage barrel biscuits, claim 6839	91
44155— " " shipment short, claim No. 7588	1 60
43862— " " shipment short with connections, claim No. 7673	74
44112— " " shipment short, claim No. 6336	2 43
44985— " " shipment short, claim No. 6971	1 86
44987— " " overcharge in weight, claim No. 7527.	14 09
45104— " " overassessed car demurrage, claim No. 8059	1 00
45184— " " parcel check books, claim No. 8128..	93
45186—Demurrage assessed in error, claim No. 8129	1 00
45300—Water rate for quarter ending March 31st, 1914	18 00
46157—Outstanding account, shipment refused, claim No. 8221...	81
46159— " " charges billed collect should be prepaid, claim No. 7534	34 79
46242—Overcharge in weight coal, claim No. 7842	43 60
46246—Outstanding account, shipment short, claim No. 5394	2 07
46248— " " " " " 7976	93
46250— " " " refused, claim No. 7572 ..	1 47
46266— " " " short, claim No. 8187	1 33
46268— " " " short, claim No. 8139	90
46470— " " overcharge in weight flour, claim No. 8107	2 00
46472— " " demurrage charged on P.R. Ry., claim No. 295709	8 00
46996—Account water rates for quarter ending June 30, 1914	18 00

AGENT T. AND N. O. RAILWAY, COBALT STATION, ONT.—*Continued.*

49429—Transportation issued *re* Thomas Quigge, sectionman, deceased	$29 35	
48260—Water rates, Cobalt Water Commission, quarter ending September 30th, 1914	18 00	
48133—Account car coal confiscated by G. T. Ry., claim No. 8290..	113 05	
48398—Outstanding account, shipment unclaimed, claim No. 8754	10 97	
49523—Overcharge in rate on caustic soda, claim No. 7659	50 27	
49525—Outstanding account, stove unclaimed, claim No.8823	2 67	
49711— " " shipment short, claim No. 8615	1 34	
50399—Amount paid Cobalt Water Commission for quarter ending December 31st, 1914	18 00	
49616—Outstanding account, shipment short, claim No. 7564	1 16	
49642—For amount paid Can. Gen. Electric Co., for fuse plugs..	40	
		$536 46

CENTRAL ONTARIO RAILWAY, TRENTON, ONT.

45068—Overcharge in weight lumber, claim No. 6489	$8 85	
		$8 85

COLLECTOR OF CUSTOMS, NORTH BAY, ONT.

44465—Duty on coal, etc., November, 1913	$3,401 44	
44402— " " " " December, 1913	4,281 65	
45437— " " " " January, 1914	2,572 01	
45356— " " " " February, 1914	1,597 84	
46283— " " " " March, 1914	2,090 53	
46532— " " " " April, 1914	1,486 43	
46658—Duty on Moore fire escapes	7 88	
47309—Duty on coal, etc., May, 1914.....	568 68	
47450—Duty on steel cars and coaches, as per statement.....	35,570 70	
47554— " soft coal, etc., month of June, 1914.....	2,924 01	
47560— " steel cars, etc., and coaches, as per statement..	21,860 70	
48509— " soft coal, etc., month of July, 1914	3,544 05	
48482— " soft coal, etc., month of August, 1914.....	1,529 21	
49651— " soft coal, etc., month of September, 1914	2,464 38	
49372—Duty on trucks and material for private car "Temagami"	7,730 70	
49690—Duty on soft coal, etc., October, 1914.....	3,740 84	
		$95,371 05

CHAMANDY BROS., COBALT, ONT.

46190—Loss, account damage to boots, claim 7901	$13 10	
49481— " " " on trunk and contents, claim 7935	14 55	
49675— " " " to trunks, claim 8603	15 30	
		$42 95

THE CANADA PAINT COMPANY, LTD., MONTREAL, QUE.

44599—Paints.....	$76 57	
44781— "	223 20	
44624— "	61 52	
44790— "	153 45	
44916— "	30 05	
45803— "	160 22	
45702— "	219 20	
46771— "	219 63	
47128— "	285 22	
47589— "	239 37	
47848— "	540 60	
49086— "	207 86	
50241— "	204 36	
49928— "	101 05	
49126— "	259 92	
		$2,982 22

COPELAND CHATTERSON COMPANY, LTD., TORONTO, ONT.

46261—Special ledger leaves	$17 93	
		$17 93

CANADIAN CAR SERVICE BUREAU, MONTREAL, QUE.

43979—Proportion of cost of operation of Canadian Car Service Bureau, October, 1913	$18 46	
44176—Proportion of cost of operation of Canadian Car Service Bureau, November, 1913	15 92	
45467—Proportion of cost of operation of Canadian Car Service Bureau, December, 1913	24 03	
45302—Proportion of cost of operation of Canadian Car Service Bureau, January, 1914	24 97	
45906—Proportion of cost of operation of Canadian Car Service Bureau, February, 1914	30 26	
46408—Proportion of cost of operation of Canadian Car Service Bureau, March, 1914	28 31	
47159—Proportion of cost of operation of Canadian Car Service Bureau, April, 1914	36 68	
47627—Proportion of cost of operation of Canadian Car Service Bureau, May, 1914	28 23	
48252—Proportion of cost of operation of Canadian Car Service Bureau, June, 1914	23 72	
48709—Proportion of cost of operation of Canadian Car Service Bureau, July, 1914	37 14	
48730—Proportion of cost of operation of Canadian Car Service Bureau, August, 1914	27 21	
50395—Proportion of cost of operation of Canadian Car Service Bureau, September, 1914	19 68	
50394—Proportion of cost of operation of Canadian Car Service Bureau, October, 1914	19 46	
		$334 07

F. CHARPENTIER, CONNAUGHT, ONT.

44831—Ties	$43 60	
44831— "	1 00	
47443— "	88 00	
48184— "	81 60	
48484— "	84 15	
48609— "	96 75	
48609— "	93 10	
48868—Telegraph poles	240 30	
49066—Plank	64 35	
50437—Ties	86 55	
		$879 40

CANADIAN LOCOMOTIVE COMPANY, LTD., KINGSTON, ONT.

44792—Engine repairs, parts	$330 00	
45801—Engine repairs, parts	33 15	
45722—Smoke stacks, axles, piston heads	299 33	
46809—Photos, engine 107	6 00	
47140—Section coupling rod	159 99	
47155—Fare advanced fireman Jno. McKenny, Kingston to North Bay, April 27th, 1914	11 65	
47813—Engine repair parts	562 50	
50222—Engine repair parts	121 50	
		$1,524 12

BERNARD CAIRNS, TORONTO, ONT.

43827—Black ink pad	$0 25	
		$0 25

COAL AND COKE RAILWAY, ELKINA, W. VA.

44047—Car service balance, September, 1913	$1 80	
44264— " " October, 1913	6 75	
45277— " " November, 1913	11 25	
		$19 80

CHICAGO, NEW YORK AND BOSTON REFRIGERATOR CO., CHICAGO, ILL.

44055—Car service balance, September, 1913		$1 54	
45287— " " November, 1913		1 49	
45400— " " December, 1913		80	
47217— " " July, 1914		1 54	
			$5 37

CENTRAL FRUIT DESPATCH, CHICAGO, ILL.

48245—Car service balance, May, 1914	$10 21	
49757— " " July, 1914	5 56	
48644— " " June, 1914	9 58	
		$25 35

CHICAGO, MILWAUKEE AND GARY RY., CHICAGO, ILL.

49967—Car repairs, bill No. 25238	$1 36	
		$1 36

CANADIAN GENERAL ELECTRIC CO., LTD., TORONTO, ONT.

44581—Shades	$5 63	
44583—Electric supplies	5 59	
44725—Electric material	3 29	
44610—Electrical fittings	63 10	
44804—Electric material	92 56	
44914—Desk lamp and shade	3 29	
45595—Electrical material	19 47	
45793—Electrical material	34 73	
45740—Electrical material	36 70	
46793—Carbons, Electrical supplies	14 41	
47142—Electrical material	126 85	
47823—Electrical material, rubber gloves, wattmeter	21 72	
47864—Electrical material	58 54	
48186*a*—Insulators, bill T-527	23 52	
49125—Cross arms, insulators, electrical material	31 03	
49100—Sockets, hydrometer	5 46	
50245—Plugs, globes, syringes	50 88	
49920—Brackets, bolts, etc.	63 83	
		$660 60

CANADIAN FAIRBANKS CO., LTD., TORONTO, ONT.

43802—Overcharge account, charges fully prepaid and collected, claim, 6423	$20 91	
44651—Gauge glasses	21 38	
44600—Ratchet drill	8 10	
44806—Tank material, graphite	260 50	
45599—Stocks, etc., gauge glasses	39 71	
45657—Instruction *re* operating 8 h.p., combined pumper, near Englehart	17 85	
45718—Packing	66 50	
46805—Packing chain block	34 35	
47104—Pipe cutters, gauge glasses, hand car parts	39 37	
47595—Tee	2 60	
47862—Graphite, repair parts, wire cable	153 79	
48196—Gauge glasses	13 61	
48525—Cement testing material	54 50	
48340—Overcharge rate on motors	1 82	
49082—Indicator balls with tube, hand car parts, gauge glasses	63 51	
50228—Drive gears	10 24	
		$808 74

CANADIAN INGERSOLL RAND CO., MONTREAL, QUE.

47324—Shipment delivered to Hollinger Gold Mines, in error as it was consigned to the Hollinger Reserve Mines, claim 8348 . . .	$22 40	
		$22 40

CHICAGO, GREAT WESTERN RAILWAY, ST. PAUL, MINN.

44419—Car repairs, bill No. 50261, Aug.	$2 82	
44272—Car service balance, October, 1913	15 75	
45283— " " November, 1913	10 35	
45394— " " December, 1913	2 25	
46035—Car repairs, bill 48716	16 46	
46343—Car service balance, January, 1914	1 35	
46421—Ticket balance, January, 1914	10 00	
46734—Car repairs, bill 50666, January 23rd, 1914	57	
48636—Car service balance, June, 1914	90	
49710—Car repairs, bill No. 56910	72	
		$61 17

CANADIAN FREIGHT ASSOCIATION, TORONTO, ONT.

43823—Proportion of expenses, month of October, 1913	$8 25	
44066— " " " November, 1913	8 53	
45469— " " " December, 1913	8 63	
45573—Copies Canadian freight classification and supplements	12 72	
45908—Proportion of expenses, February, 1914	8 03	
46661— " " March, 1914	8 34	
47379—One copy Volume No. 5, boards, orders and proportion expenses, April, 1914	10 04	
48715—Proportion of expenses, month of June, 1914	33 05	
48728— " " " July, 1914	35 76	
48880— " " " August, 1914	35 22	
49829—Tariffs supplied, bill 25427, September, 1914	34	
50025—Proportion of expenses, month of September, 1914	37 29	
50179—Supplements and Canadian freight classification, No. 16	2 68	
50183—Tariffs supplied, June 1st to September 30th, 1914	42	
50050—Proportion of expenses, October, 1914	36 62	
		$245 92

CANADA METAL COMPANY, LTD., TORONTO, ONT.

44597—Metals, lead pipe	$99 34	
44616— " "	75 76	
45797—Metals	54 06	
45724— "	35 45	
46767— "	53 09	
47132— "	84 31	
47831— " sheet lead	2 08	
47854—Battery zinc	27 90	
48192—Sheet lead	7 25	
49119—Metals	75 45	
49094—Solder, etc.	39 80	
50257—Metals, zincs	76 58	
50236—Metals	18 09	
		$649 16

CANADA LOAN CORPORATION, LTD., MONTREAL, QUE.

44719—Castings	$251 80
44626— "	556 84
44802— "	84 49
44902— "	41 99
45461— " and tires	213 17
45463— "	1,234 09
45530—Wheels	2,490 10

CANADA LOAN CORPORATION, LTD., MONTREAL, QUE.—*Continued.*

45708—Wheels, castings	$1,026 81	
46775—Castings	371 36	
46884— "	1,260 80	
47084— "	7 85	
47517— "	2,044 70	
47438— "	651 76	
47838— "	627 90	
48186— "	46 33	
48527—Wheels	2,131 42	
49107—Castings	127 80	
49442—Freight charges on crate of patterns and core box	1 33	
49528—Castings, wheels, bills S 138-154-70-136-46-88	431 29	
50178—Castings and tires	979 99	
		$14,581 82

CANADIAN PACIFIC RAILWAY COMPANY'S TELEGRAPH, TORONTO, ONT.

43821—Messages, Oct. 7th to Oct. 28th, 1913	$9 86	
44177—Telegraph service, October, 1913	3 47	
43924— " Nov. 13th and 14th, 1914, Toronto	7 15	
44414— " Nov. 6th to 27th, 1913	3 62	
44068— " Nov. 5th, 7th and 25th, 1913, North Bay	2 42	
45037— " messages, December, 1913	3 42	
45139— " " June 4th, 1913	1 57	
45569— " " December, 1913	7 11	
45639— " December 1st to 26th, 1913	2 66	
45735— " January 2nd and 3rd, 1914	3 24	
45308— " January, 1914, North Bay	81	
45352— " January 8th to 27th, North Bay	1 97	
45912— " Feb. 20th, 1914	42	
46503—Telegraph service, February, 1914	3 82	
46655— " " Feb. 23rd, March 2nd, 1914	2 08	
46988— " " March, 1914	5 73	
47153— " " April, 1914	8 65	
47519— " " May, 1914	1 33	
47714— " " May, 1914	8 14	
47716— " " June, 1914	3 63	
48711— " " June, 1914	4 93	
48918— " " July 2nd to July 29th, 1914	20 14	
49010— " " July and August, 1914	2 49	
50029— " " August, 1914	1 10	
50031— " " September, 1914	2 63	
50181— " " September, 1914	15 94	
50386— " " October, 1914	25	
		$128 58

R. W. CHISHOLM & CO., BUFFALO, N.Y.

43800—Overcharge in weight on coal, claim No. 6675	$8 55	
		$8 55

CANADIAN EXPLOSIVES, LTD., COBALT, ONT.

46184—Refund of 15% account bond of indemnity, claim No. 8084	$0 75	
47599—Fuses	76 76	
49048— "	6 00	
47828— " and detonators	8 46	
		$91 97

COLD BLAST TRANSPORTATION CO., CHICAGO, ILL.

45275—Car service balance, November, 1913	$7 00	
45388— " " " December, 1913	3 11	
46337— " " " January, 1914	1 18	
47209— " " " March, 1914	2 35	
		$13 64

CINCINNATI NORTHERN RAILROAD, CINCINNATI, OHIO.

46092—Car repairs, bill No. 19830, Sept. 20th, 1913	$0 44	
		$0 44

CHICAGO, BURLINGTON & QUINCY RAILROAD, CHICAGO, ILL.

43840—Overcharge in weight, silver ore, claim No. R 215299	$1 35	
44415—Car repairs, bill No. R 35371, Sept.	8 11	
44863—Car repairs, bill No. R 35794	1 89	
45916—Overcharge in weight, silver ore, various claims	7 34	
45502—Ticket balance, December, 1913	68 70	
45931—Car repairs, bill No. R 36297	2 65	
46123—Overcharge in weight, silver ore, claim No. 225254	3 71	
46044—Car repairs, bill No. R 36739	21 51	
46192—Overcharge in weight, silver ore, claims Nos. 8133-8105	5 49	
46558—Car repairs, bill No. 37093, Nov. 6-24, 1913	3 02	
46736— " " Dec., 1912, bill No. 37506	72	
47997— " " bill No. R 37923	32 06	
48022— " " bill No. R 38359	22 82	
49333— " " bill No. R 38770	19 29	
48342—Overcharge in weight on silver ore, claim No. 7116	3 40	
49286—Car repairs, bill No. R 39152	1 03	
49963— " " bill No. R 39548	50	
49726— " " bill No. R 39949	20 21	
		$223 71

CANADIAN WESTINGHOUSE COMPANY, LTD., HAMILTON, ONT.

44477—Air brake material	$214 47	
44723— " " "	6 00	
44800— " " "	192 22	
44842— " " "	52 24	
45607— " " "	61 52	
45698— " " "	145 11	
46295— " " " and electrical material	183 01	
47122— " " "	92 95	
47825— " " "	130 63	
47856— " " "	8 60	
49109— " " "	100 31	
49098— " " "	35 91	
50243— " " "	137 89	
49932— " " "	69 69	
		$1,430 55

B. J. COGHLIN & CO., MONTREAL, QUE.

44603—Springs	$46 37	
44785—Rods	120 75	
44618—Covers	5 00	
45787—Pinch bars, springs	50 98	
47100—Springs	64 92	
47591—Chains, springs, equalizers	111 54	
47846—Tail pockets	112 50	
49111—Chain	1 80	
49080—Coupler spring 6" x 8"	42 88	
50239—Levers	67 50	
49912—Springs	12 00	
		$636 24

JAMES A. COLE & CO., NORTH BAY, ONT.

44293—Building material	$35 36	
44479— " "	88 75	
44481—Lumber	486 70	
44787— "	7 14	
44908—Building material	33 83	

JAMES A. COLE & CO., NORTH BAY, ONT.—*Continued.*

45603—Frames	$105 40	
45805—Building material	11 68	
45694— " "	160 88	
47850—Birch	3 75	
49099—Building material, doors and frames, picture mould	191 09	
49569— " " " " "	356 66	
50249— " " " " "	54 00	
		$1,535 24

CONSOLIDATED CAR HEATING COMPANY, ALBANY, N.Y.

44622—Gaskets	$30 00	
45609—Coupler leads, etc., gaskets	270 70	
45696—Gaskets, etc.	15 00	
46699—Hose clamps and nuts	7 80	
46878—Hose clamps and nuts	45 00	
46886—Gaskets	21 60	
49910—Gaskets	30 00	
		$420 10

A. A. COLE, MINING ENGINEER, COBALT, ONT.

—Services rendered commission, Nov. 1st, 1913, to Oct. 31st, 1914	$3,300 00	
—Expenses accounts during above period	162 40	
		$3,462 40

WILLIAM CHAMBERS, CAR REPAIRER, ENGLEHART, ONT.

48778—Expenses August, 1914	$2 00	
		$2 00

COBALT Y. M. C. A., COBALT, ONT.

43683—For donation	$500 00	
		$500 00

HUGH CARNEY, WATER SERVICE HELPER, ENGLEHART, ONT.

48780—Expenses August, 1914	$8 75	
		$8 75

COBALT WATER COMMISSION, COBALT, ONT.

45465—Water supplied yard engine, 1913 to 1914	$46 13	
48472—Water supplied yard engine, July and August, 1914	18 00	
		$64 13

TOWNSHIP OF COLEMAN, P. J. HART, TREASURER, COBALT, ONT.

49628—Refund of 10 per cent. charge for superintendence and engineering included on our bills, Nos. 9614, for $845.73 and 18887 for $59.40, being $76.88, and $5.40, respectively, the accounts having already been settled in full	$82 28	
		$82 28

CANADIAN BRONZE COMPANY, LIMITED, MONTREAL, QUE.

44649—Brass castings	$165 36	
44777— " "	166 75	
44628—Castings and bearings	949 61	
44910—Brass castings	830 30	
45767— " "	661 27	
45692— " " journal bearings	260 04	
46811— " " February, March, 1914	52 79	
47136—Journal bearings, brass castings	364 83	

CANADIAN BRONZE COMPANY, LIMITED, MONTREAL, QUE.—*Continued.*

47515—Brass castings	$77 00	
47852— " "	9 55	
47129— " "	153 43	
49859— " "	254 44	
50255— " "	60 64	
49924— " "	48 95	
50176—Journal bearings and brass castings	189 94	
		$4,244 90

CINCINNATI, HAMILTON AND DAYTON RAILROAD, CINCINNATI, OHIO.

44053—Car service balance, September, 1913	$16 65	
44270— " " " October, 1913	96 75	
44922— " repairs, bill No. 753, Sept., 1913	50	
45281— " service, balance November, 1913	33 35	
45971— " repairs, bill No. 770, November, 1913	1 06	
46341— " service balance, January, 1914	15 75	
46653— " repairs, bill No. 775, January, 1914	4 89	
46724— " " " 398, February, 1914	73	
47993— " " " 661, February, 1914	2 34	
48026— " " " 392, April, 1914	10 53	
49329— " " " 659, May, 1914	2 36	
49288— " " " 668, June, 1914	4 93	
49969— " " " 434, July, 1914	2 69	
		$192 53

COLUMBIA GRAPHOPHONE CO., TORONTO, ONT.

49638—B 7 sapphire setting	$2 00	
		$2 00

CANADIAN NORTHERN RAILWAY, TORONTO, ONT.

44409—Car repairs, June-November, 1912, 1913, bills Nos. 302767..	$3 69	
44553— " " September, bill No. 30278	2 57	
45396— " service balance, December, 1913	50 90	
46029— " repairs, bill No. 31438	7 13	
46556— " " " 32403	1 07	
47213— " service balance, March, 1914	9 95	
47289—Ticket balance, March, 1914	12 10	
47969—Car repairs, bill No. 33522	90	
47478— " service balance, April, 1914	2 69	
47478— " service balance, April, 1914	9 90	
48095—Refund of charges on incubator, error in billing, claim No. 8225	35	
48638—Car service balance, June, 1914	17 25	
49335— " repairs, bill No. 12850	1 65	
49923— " service balance, July, 1914	42 30	
49468— " " " August, 1914	46 80	
49512—Ticket balance, August, 1914	10 40	
		$219 65

CHICAGO AND EASTERN ILLINOIS RAILWAY, CHICAGO, ILL.

44039—Car service balance, September, 1913	$1 35	
44417— " repairs, August, 1913, bill No. 24624	4 65	
44865— " " September, 1913, bill No. 25460	2 23	
45015— " service balance, October, 1913	4 95	
45963— " repairs, bill No. 28076	3 83	
46046— " " " 30908	64	
46194—Overcharge in rate in mchy. claim No. 7722	16 80	
46333—Car service balance, January, 1914	7 65	
47975— " repairs, bill No. 34608	21 94	
49349— " " " 37344	7 97	
49957— " " " 39638	17 31	
		$89 32

CLAYTON AND LAMBERT, DETROIT, MICH.

46769—Burners and swivels, March, 1914	$8 00	
		$8 00

CANADIAN BILLINGS AND SPENCER, LIMITED, WELLAND, ONT.

45746—Wrenches	$15 60	
		$15 60

A. K. CHAMANDY, SOUTH PORCUPINE, ONT.

46188—Loss groceries burnt at Earlton, June 30th, claim No. 7590.	$11 77	
		$11 77

CHICAGO, ST. PAUL, MINNEAPOLIS AND OMAHA RY., ST. PAUL, MINN.

44274—Car service balance, October, 1913	$4 50	
44972—Car repairs, bill No. 121579	3 88	
45969— " " " 122277	11 91	
46088— " " " 122885	11 64	
46562— " " " 123583	10 99	
46912— " " " 124298	12 16	
47981— " " " 124779	91	
48030— " " " 125410	17 69	
49345— " " " 126275	5 96	
49276— " " " 126629-127179	15 40	
		$95 04

CENTRAL RAILROAD OF NEW JERSEY, JERSEY CITY, N.Y.

44041—Car service balance, September, 1913	$4 50	
44258— " " " October, 1913	15 75	
45269— " " " November, 1913	11 70	
46031— " repairs, bill No. 92329	1 41	
47205— " service balance, March, 1914	4 05	
49347— " repairs, bill No. 36826-44694, March and April, 1914	5 19	
49282— " " " 51612	1 29	
49714— " " " 59921-22	2 10	
		$45 99

COBALT DAILY NUGGET, LTD., COBALT, ONT.

43783—Information reports, Industrial and Commercial Bulletins	$39 50	
43962—Advertising sale of land	29 10	
45035—Information bulletins	22 50	
45567—Advertisement, supplement of circular No. 125, *re* handling explosives	2 90	
45641—Advertisement *re* Restauraunt privileges, Temagami	5 20	
45148— " Cobalt station grounds	44 10	
45626— " *re* handling high explosives, trains 1 and 2.	5 00	
46451—Industrial bulletins	27 00	
46474—Overcharge in rate, paper, etc., claim No. 8211	6 37	
46606—Advertisement, house and lot, Cochrane	5 40	
47050—Industrial and commercial bulletins	27 00	
47385—500 distance table and station list, No. 59	11 50	
47467—Advertisement unsold lots, Cochrane, Latchford	26 20	
47718— " *re* tenders, stations, houses, etc.	9 15	
48703—Industrial bulletins for July, 1914	43 70	
48552—Advertising in special number	75 00	
48928— " unsold lots in Matheson	5 50	
49679—Damage to paper in transit, claim No. 7950	7 20	
49636—Lists of pulpwood buyers and sellers	12 50	
50052—Industrial and commercial bulletins	27 00	
		$431 82

CANADIAN RAMAPO IRON WORKS, LIMITED, NIAGARA FALLS, ONT.

44303—Amount deducted from voucher in error	$60 00	
47118—Switch stands and switch stand parts	97 10	
47819—Switch stands	768 20	
49101—Frogs and switches, switch points, switch material	3,060 00	
49074—Split switches, clamp frogs, guard rails	2,345 20	
50247—Switch stands	94 00	
		$6,424 50

CHICAGO, ROCK ISLAND AND PACIFIC RY., CHICAGO, ILL.

44423—Car repairs, June to September, 1914, bill No. 611608-782-612038	$22 35	
44871—Car repairs, July, 1913 bill No. 572427	1 69	
44260— " service balance, October, 1913	8 45	
44920— " repairs, bill No. 613075, October 2 to 18, 1913	6 67	
45271— " service balance, November, 1913	36 00	
45937— " repairs, bill No. 713460	6 94	
46086— " " " 814782, Nov. 28th, Dec. 18th, 1913	4 21	
46651— " " " 512675, Nov. 27th, to Jan., 1914	12 89	
46730— " " " 522905, July, 1913 to Feb., 1914	3 43	
47991— " " " 532727, February and March, 1914	3 89	
48036— " " " 542667, April, March, 1914	2 60	
49343— " " " 562384, December, 1913 to May, 1914.	31 01	
49677—Overcharge on fruits claim No. 8294	2 82	
49959—Car repairs, bill No. 572541	83 21	
49582—Loss account, damage to h.h.gds, claim No. 8653	1 52	
49728—Car repairs, bill No. 582434, August, 1914	12 22	
		$239 90

COURIER PRINTING CO., ENGLEHART, ONT.

44347—Subscription, Nov. 18th, 1913, to Nov. 18th, 1914	$1 00	
43960—Advertising sale of lots	23 73	
45734—Printing forms	11 35	
47381—Advertising sale of lots, Temagami Restaurant	10 68	
47605—Forms, March 21st to May 20th, 1914	15 80	
47722—Advertising, *Canadian Courier*, August 21st, 1914	25 00	
50220—Printing forms	3 23	
		$90 79

CANADIAN ENGINEER, TORONTO, ONT.

44349—Subscription, Dec., 1913, to Dec., 1914	$3 00	
		$3 00

S. B. CLEMENT, CHIEF ENGINEER AND SUPT. OF MAINTENANCE, NORTH BAY, ONT.

Services rendered Commission, Nov. 1st to Oct. 31st, 1914	$4,000 00	
Expense accounts during same period	300 80	
		$4,300 80

AGENT T. & N. O. RY., CHARLTON STATION, ONT.

43864—Outstanding account, shortage iron, claim No. 6784	$1 61	
45150—Teams for use of Commission at Charlton Fair, Sept. 17th, 1913	5 00	
49529—Outstanding demurrage assessed, claim No. 8821	2 00	
		$8 61

CARTER'S INK COMPANY, MONTREAL, QUE.

44301—Mucilage and ink	$71 88	
44656—Ribbons	12 25	
45732— "	14 50	
46799— "	7 34	
47114—Copying ink	12 50	

CARTER'S INK COMPANY, MONTREAL, QUE.—*Continued.*

47603—Ink and ribbons	$29 13	
49052— "	52 88	
49900— "	17 38	
		$217 86

A. J. COLLEY, CALLANDER, ONT.

49058—Meat for boarding car, July, 1914	$3 85	
		$3 85

CANADIAN ALLIS CHALMERS, LTD., TORONTO, ONT.

45258—Material supplied for repairs Englehart turntables	$120 00	
46193—Overcharge freight, machinery, claim No. 6872	13 37	
46765—Gate valves, turntable repairs	188 90	
		$322 27

CANADIAN INSPECTION & TESTING LABORATORIES, LTD., MONTREAL, QUE.

45683—Shop inspection of Boston Creek viaduct, spikes, bill No. 11271	$95 65	
45256—Shop inspection of Boston Creek viaduct, spikes, bill No. 12228	3 38	
46410—Shop inspection of Wild Goose River viaduct, Nov. and Dec., 1913	115 47	
		$214 50

CANADIAN NORTHERN QUEBEC RY., TORONTO, ONT.

45165—Overcharge on dump cars, claim No. 6781	$262 72	
46335—Car service balance, January, 1914	7 20	
46659—Proportion of commission allowed on immigrant tickets	63	
46414—Proportion of commission allowed on immigrant tickets	31 55	
46778—Car service balance, February, 1914	4 05	
47044—Proportion of commission allowed on immigrant tickets, October, 1913	6 67	
47207—Car service balance, March, 1914	2 70	
48124—Proportion of commission on European immigrant traffic, April, 1914	3 57	
48924—Proportion of commission on European immigrant traffic, May, 1914	5 66	
50019—Proportion of commission on European immigrant traffic, June, 1914	3 34	
		$328 09

S. J. CHERRY & CO., NORTH BAY, ONT.

45146——Work performed Temagami station and offices	$93 67	
45910— " " in general office building, Jan., 1914	400 00	
46354—Labor and material supplied as per estimate No. 1, restaurant, Englehart Station	167 00	
50021—Plumbing on general office building	2 25	
50391— " " " "	1 95	
		$664 87

CARIBONUM CO., LTD., TORONTO, ONT.

44299—Carbon paper	$6 00	
46783— " "	12 00	
47106— " "	15 00	
47842— " "	6 00	
49087— " "	37 80	
49070— " "	6 68	
50253— " "	6 00	
50226— " "	30 00	
		$119 48

CANADIAN TUNGSTEN LAMP CO., HAMILTON, ONT.

44655—Lamps	$142 51	
44604— "	46 00	
44796— "	38 36	
45783— "	123 28	
45726— "	92 97	
47116— "	10 60	
47844— "	17 50	
		$471 22

CANADIAN PNEUMATIC TOOL CO., MONTREAL, QUE.

45704—Augers	$5 37	
47108—Bits	14 35	
50214— "	38 37	
49904—Repairs to Boyer chippers	36 33	
		$94 42

W. H. COE MANUFACTURING CO., PROVIDENCE, R. I.

44061—Ribbon gold, ribbon aluminum	$57 17	
46791— " "	56 20	
47805—Gold leaf	60 73	
49097— " "	14 00	
		$188 10

CLEVELAND COPPER FERRULE CO., CLEVELAND, OHIO.

44593—Ferrules	$61 28	
47126— "	22 98	
47585— "	22 98	
48876— "	22 98	
		$130 22

CODE & BURRETT, OTTAWA, ONT.

44416—For services *re* North Bay crossing	$5 00	
		$5 00

CANADIAN STEEL FOUNDRIES, LTD., MONTREAL, QUE.

44587—Springs	$117 40	
44589— "	173 85	
44727— "	43 20	
44773—Switches and switch parts	2,442 82	
44775—Driving boxes	98 40	
44608—Engine fittings	163 30	
44810—Knuckles	23 70	
44844—Castings	6 02	
45459—Springs, couplers and steel castings	189 05	
45730—Knuckle pins	6 25	
46779—Castings, knuckles	38 20	
47138—Freight charges paid by us on pattern No. 530 A	106 33	
47607—Tower couplers, knuckles, knuckle pins	378 50	
49127—Couplers, coupler parts	73 10	
49092—Fish plates	63 00	
50251—Couplers, clevises and pins	221 00	
49926—Locks and pins, castings	15 70	
50232—Couplers	157 50	
		$4,317 32

CENTRAL OF GEORGIA RAILWAY, SAVANNAH, GA.

44045—Car service balance, September, 1913	$8 25	
45929—Car repairs, bill No. 6895	1 90	
46040— " " " W 6940	4 18	
46728— " " " W 9302	3 45	

CENTRAL OF GEORGIA RAILWAY, SAVANNAH, GA.—*Continued.*

46780—Car service balance, February, 1914	$4 95	
47995—Car repairs, bill No. 11797	3 18	
49323— " " " 14323	1 25	
		$27 16

FRANK A. CHILD, MATHESON, ONT.

46264—Damage to ranges by fire, Cochrane, Dec. 6th, 1913	$41 63	
		$41 63

MUNICIPALITY OF TOWN OF COBALT, COBALT, ONT.

45629—Grant towards general purposes of the municipality	$600 00	
45631— " " " " " "	600 00	
45633— " " " " " "	600 00	
48523— " " " " " "	600 00	
		$2,400 00

COBALT BOARD OF TRADE, COBALT, ONT.

45902—Membership fees for year 1914	$5 00	
		$5 00

CANADIAN ASBESTOS CO., MONTREAL, QUE.

45785—Asbestos	$11 25	
46789— "	3 96	
47124— "	210 00	
49076— "	4 02	
49908— "	11 25	
		$240 48

CAPITAL PRESS, LTD., OTTAWA. ONT.

46992—Railway Commissioners Judgments, April, 1914, to March, 1915	$6 25	
47601—Binder	1 25	
		$7 50

THE CROSSEN CAR MFG. CO., COBOURG, ONT.

44906—Castings	$3 52	
45601—Heater coils	36 00	
45738—Castings	47 50	
46801—Moulding	24 10	
47815—Repair parts	26 00	
49916—Seat castings	5 02	
		$142 14

R. CUDDIE & CO., ENGLEHART, ONT.

45736—Slabs	$4 50	
		$4 50

CINCINNATI, NEW ORLEANS & TEXAS PACIFIC RY.

44043—Car service balance, September, 1913	$26 10	
44262— " " " October, 1913	4 95	
45273— " " " November, 1913	16 20	
45386— " " " December, 1913	90	
45939—Car repairs, August 3rd to Sept. 28th, 1913	4 54	
46094— " " bill 19974, Nov. 8th to 24th, 1913	3 44	
46570— " " " 20388, Dec. 9th, 1913	1 83	
46720— " " " 20843, January, 1914	54	
47979— " " " 21230, February, 1914	2 01	
49278— " " " 22434, May, 1914	3 69	
49726— " " " 39949, June-July, 1914	3 92	
		$68 12

AGENT T. & N. O. RY., COCHRANE STATION, ONT.

43677—Outstanding account, overcharge in weight on lumber	$9 50	
43866— " " shipped short, claim No. 7542	1 75	
44042— " " " " " " 7077	92	
45188— " " " " " " 8090	75	
46161— " " " " " " 8181	1 89	
46272— " " " " " " 7898	2 21	
48339— " " undercharge in rate on potatoes, claim 8702	22 27	
48341— " " undercharge in rate on machinery, claim 8650	35 62	
48396— " " undercharge in rate 8511	1 06	
49527— " " shipped short, rate 8308	96	
		$76 93

CANADA CEMENT COMPANY, LTD., MONTREAL, QUE.

44808—Cement	$290 70	
47817— "	287 64	
49103— "	581 40	
49543— "	325 30	
		$1,485 04

CHARLESTON & WESTERN CAROLINA RAILWAY CO., WILMINGTON, N.C.

46033—Car repairs, bill "F" 151	$0 19	
		$0 19

CAROLINA, CLINCHFIELD & OHIO RY., JOHNSON CITY, TENN.

45285—Car service balance, November, 1913	$3 15	
44861—Car repairs, bill No. 7730	37	
45398—Car service balance, December, 1913	1 80	
46345— " " " January, 1914	4 95	
47215— " " " March, 1914	5 85	
47480— " " " April, 1914	9 00	
49290—Car repairs, bill No. 10384	1 10	
49971—Car repairs, bill No. 10656	84	
		$27 06

CANADIAN RAILWAY ACCIDENT INSURANCE CO., OTTAWA, ONT.

46352—Premium on Employers' Liability policy, No. 73568, to May 1st, 1915	$7,110 00	
		$7,110 00

CANADIAN CONSOLIDATED RUBBER CO., MONTREAL, QUE.

44295—Boots and steam hose	$106 22
44721—Water hose	287 63
45113—Sheet packing, matting, water hose, etc.	215 42
44840—Hose	112 50
45457—Water hose	44 10
45532—Hose	30 38
45598—Hose and Valves	59 86
45706—Hose, etc.	81 37
46231—Rubber	73 50
46293—Packing, hose	138 84
46350—Hose, boots	110 03
47026—Garden hose	11 03
47123—Boots, hose, packing	72 54
47611—Hose, washers, matting, valves, etc.	220 54
47582—Hose	58 29
47672—Tubing and hose	59 78
48203—Valves, Garden hose, plugs	134 04
48567—Steam hose	56 84

CANADIAN CONSOLIDATED RUBBER CO., MONTREAL, QUE.—*Continued.*

48572—Washers	$9 15	
49096—Air brake, hose, valves, hose	168 28	
49545—Service, water hose	62 39	
49637—Boots, hose	268 58	
49729—Gauge glass cleaners, signal hose, packing	91 42	
49922—Hot water hose	61 10	
50238—Boots, hose valves, packing	118 65	
		$2,652 48

CHICAGO RAILROAD ASSOCIATION, CHICAGO, ILL.

47048—Two copies Chicago Rate Sheet, No. 267	$2 00	
		$2 00

THE CARBORUNDUM COMPANY, NIAGARA FALLS, N.Y.

45807—Alox wheels	$18 24	
49068—Alox wheels	17 50	
		$35 74

CHICAGO AND ALTON RAILROAD, CHICAGO, ILL.

44037—Car service balance, September, 1913	$4 05	
44413— " " October, 1913	3 11	
44254— " " October, 1913	24 75	
45267— " " November, 1913	9 00	
45384— " " December, 1913	4 50	
46716—Car repairs, bill 163785, January-February, 1914	1 05	
47973— " " 165138, March, 1914	3 37	
48028— " " 166325, April, 1914	1 71	
		$51 54

COLORADO AND SOUTHERN RY. DENVER, COL.

45289—Car service balance, November, 1913	$4 95	
44980—Car repairs, bill No. 2374	13 16	
44250—Car service balance, October, 1913	4 80	
44427—Car repairs, bill No. 2349, May and June	13 65	
49339—Car repairs, bill No. 8063, November, 1913, February, 1914	15 38	
		$51 94

CORPORATION OF TOWN OF COCHRANE, COCHRANE, ONT.

44181—Water rate for quarter commencing November 1st, 1913	$5 56	
45304— " " " February 1st, 1914	5 56	
47369— " " " May 1st, 1914	5 56	
48484— " " " August 1st, 1914	5 56	
		$22 24

H. S. CAMPBELL, NORTH BAY, ONT.

44585—Chemicals	$4 20	
44798—Saltpetre	60	
46797—Ammonia	3 65	
49091—First aid supplies	9 35	
		$17 80

COLIN CAMPBELL, THORNLOE, ONT.

44831—Switch sets	$22 40	
46269— " "	88 01	
48868— " "	40 00	
		$150 41

CUDAHY REFRIGERATOR LINE, SOUTH OMAHA, NEB.

44278—Car service balance, October, 1913	$3 83	
44278—Car service balance, November, 1913	7 70	
		$11 53

COLORADO, MIDLAND RAILWAY, DENVER, COL.

44982—Car repairs, bill No. 4333	$4 82	
		$4 82

COMMERCIAL PRESS, LTD., TORONTO, ONT.

46505—Subscription to the Railway Journal of Canada, Dec., 1914	$1 00	
47046—Five Subscriptions to the Railway Journal of Canada, year 1914	5 00	
		$6 00

ROLLA L. CRAIN CO., LTD., OTTAWA, ONT.

44654—Forms	$81 27	
47112—Forms	17 68	
47799—Blinders	3 50	
		$102 45

COCHRANE HARDWARE, LTD., NORTH BAY, ONT.

44247—Padlock	$1 00	
44605—Spindle, thermometer	3 71	
44647—Washers	1 50	
44731—Dynamite, building, paper, etc.	244 10	
44783—Padlocks	7 75	
44935—Loss account damage to paints in transit	55 99	
44937—Loss wheelbarrow wheels short, claim, No. 7795	5 78	
44612—Axes, tile	19 76	
44794—Wrenches, axe handles, etc.	6 00	
44904—Washers	1 50	
45605—Faucets, glass gauge	14 23	
45789—Glass, white lead, roofing, locks, etc.	62 77	
45700—Hooks, locks	30 73	
46777—Mail bag, padlocks, chain, belt, locks	8 68	
47098—Hardware as per statement attached to voucher	14 10	
47827— " " " " " "	289 74	
47866— " " " " " "	239 42	
48194—Iron muffin pans, tinware	22 99	
48343—Refund freight prepaid account collected twice, claim No. 8539	1 53	
49105—Hardware as per statement attached to voucher	523 29	
49084— " " " " " "	111 26	
49930—Hasps and staples, dynamite, paint and fittings	407 00	
50023—Keys supplied to officers, general office building	75	
50291—Hardware as per statement attached to voucher	233 99	
50230—Ship augers, hinges	9 88	
		$2.444 45

CANADA WIRE AND CABLE CO., TORONTO, ONT.

46787—Copper wire	$8 35	
47090— " "	17 00	
49113— " "	11 83	
		$37 18

CHICAGO ROCK ISLAND & GULF RAILWAY, FT. WORTH TEXAS.

44252—Car service balance, October, 1913		$8 55	
45265— " " " November, 1913		3 60	
46039— " repairs, bill No. 92201		2 14	
46718— " " " 95184		6 45	
47983— " " " 96200		1 46	
49462— " service balance, August, 1914		1 80	
49284— " repairs, bill No. 1196, July, 1914		87	
			$24 87

CENTRAL NEW ENGLAND RAILWAY, NEW HAVEN, CONN.

44276—Car service balance, October, 1913		$3 60	
45291— " " " November, 1913		45	
45402— " " " December, 1913		2 70	
48038— " repairs, bill 1651, " 1913		58	
48241— " service balance, May, 1914		45	
49724— " repairs, bill No. 22778		1 70	
			$9 48

CHICAGO JUNCTION RAILWAY, CHICAGO, ILL.

44421—Car repairs, bill No. 94851		$38 19	
44976— " " No. 1378		9 78	
45965— " " No. 2503		2 04	
46564— " " No. 6544		2 24	
46714— " " No. 5181		10 32	
47989— " " No. 8186		13 09	
49325— " " No. 10940		9 74	
49292— " " No. 12270		60	
49973— " " No. 13597		18 63	
			$104 63

JOHN CLARK, ENGLEHART, ONT.

44179—Supplies furnished auxiliary car		$19 30	
43996—Claims as per statement attached to voucher		12 03	
44108—Refund % freight charges, bona fide fire sufferer		1 10	
44172—Supplies for auxiliary car		2 35	
			$34 78

EDWARD COOK, THORNLOE, ONT.

44233 Telegraph poles		$140 00	
44233 "		5 70	
44233 "		50 71	
			$196 41

CANADIAN-DETROIT LUBRICATOR CO., WINDSOR, ONT.

46785—Lubricator		$7 16	
47088—Rubber packing		2 09	
47829—Lubricator		5 16	
49117—Packing		4 75	
			$19 16

CHICAGO, TERRE HAUTE AND S. E. RAILWAY, CHICAGO, ILL.

44059—Car service, balance September, 1913		$27 45	
44280— " " October, 1913		4 95	
48249— " " April, 1914		5 85	
48642— " " June, 1914		90	
47219— " " March, 1914		90	
			$40 05

CHARLTON AGRICULTURAL SOCIETY, CHARLTON, ONT.

45122—Donation towards prizes, annual fair, September 15th and 16th, 1914	$10 00	
		$10 00

CURTAIN SUPPLY COMPANY, CHICAGO, ILL.

47110—Curtains	$136 80	
47807—Car parts	15 93	
		$152 73

CHAS. CHAPMAN CO., LONDON, ONT.

44297—Forms	$27 12	
44658— "	27 61	
44788— "	35 58	
45791— "	19 00	
46759— "	44 53	
47134— "	57 00	
47587— "	47 50	
47840— "	133 68	
49085— "	76 28	
49072— "	89 05	
50231— "	15 75	
49902— "	43 00	
50218— "	3 50	
		$619 60

CENTRAL FREIGHT ASSOCIATION, CHICAGO, ILL.

43825—Classification	$2 00	
44412—Tariffs supplied, November, 1913	34	
45681— " " January, 1914	28	
46453— " " to March, 1914, bill No. 19017	34	
46994— " " March, 1914, bill No. 19017	19	
47383— " " May 22nd, 1914, bill No. 21542	63	
47461— " " March and April, 1914, bill No. 21980	43	
47463— " " March and April, 1914, bill No. 21980	33 39	
48701— " " bill No. 23404, May, 1914	53	
48926— " " bill No. 24518, June, 1914	45	
		$38 58

CRUCIBLE STEEL COMPANY OF AMERICA, PITTSBURG, PA.

44607—Steel	$68 75	
44620— "	50 33	
45781— "	14 30	
45728— "	2 48	
47830— "	54 45	
49062— "	89 60	
		$279 91

CANADIAN EXPRESS COMPANY, NORTH BAY, ONT.

46402—Express charges, manifest No. 598	$0 90	
		$0 90

CENTRAL RAILWAY SIGNAL COMPANY, PITTSBURG, PA.

47102—Torpedo fusees	$111 50	
49095—Red fusees	31 50	
		$143 00

CUDAHY'S MILWAUKEE REFRIGERATOR LINE, CUDAHY, WIS.

45404—Car service balance, December, 1913	$3 79	
		$3 79

COCHRANE TELEPHONE CO., LTD., COCHRANE, ONT.

44168—Exchange service, December 8th to June 8th, 1914	$15 00	
48256—Telephone rental station and freight shed, 1914	30 00	
50392—Rental of telephone in Cochrane station, Sept. 26th, 1914 to March 26th, 1915	15 00	
		$60 00

A. W. CAVANAGH, TIE INSPECTOR, NORTH BAY, ONT.

43931—Expenses, October, 1913	$27 70	
43932— " November, 1913	22 30	
44490— " December, 1913	25 90	
45511— " January, 1914	24 25	
45576— " February, 1914	22 75	
46587— " March, 1914	26 60	
46962— " April, 1914	23 15	
47391— " May, 1914	24 35	
48232— " June, 1914	28 75	
48550— " July, 1914	26 40	
49885— " August, 1914	12 05	
50115— " September, 1914	29 45	
50366— " October, 1914	26 25	
		$319 90

CANADIAN CAR & FOUNDRY CO., MONTREAL, QUE.

44591—Drawbar end carriers	$18 00	
44729—Brake beams	228 00	
44779— "	54 00	
44606—Springs	20 13	
44912—Brake heads, castings	77 75	
45597—Brake lever pins	26 00	
45720—Turnbuckles, brake heads	141 00	
46803—Brackets	12 50	
47130—Springs	5 00	
47593—Brake beams, car parts, iron, etc.	229 70	
47801—Drawbar castings	102 50	
47860—Journal box lids, spring bolts, castings, brake beams	108 75	
48190—Pins	26 12	
49131—Brake heads, car parts	107 50	
49090—Brake beams, carrier irons	250 50	
49918—Brackets, castings	25 00	
50235—Followers, end castings	71 00	
50234—Centre plates, brake beams	74 90	
		$1,578 35

CENTRAL PRISON INDUSTRIES, TORONTO, ONT.

45795—Brooms	$42 50	
45716— "	42 50	
46781— "	34 00	
47086— "	34 00	
44595— "	24 00	
44602— "	42 50	
47809— "	25 50	
47832— "	63 75	
		$308 75

COBALT MINES HOSPITAL, COBALT, ONT.

43882—Annual donation, 1913	$100 00	
		$100 00

CANADIAN YALE AND TOWNE CO., LTD., ST. CATHARINES, ONT.

44653—Padlocks	$1 79
44614—Padlocks, latches	33 13
45742—Latches, padlocks	28 20

CANADIAN YALE AND TOWNE CO., LTD., ST. CATHARINES, ONT.—*Continued.*

47120—Padlocks	$25 06	
47821— "	14 32	
48188— "	2 34	
49115— " and night latches	18 13	
49060— "	14 32	
		$137 29

CURTISS AND HARVEY (CANADA), LTD., COBALT, ONT.

43695—Overcharge in freight, dynamite, claim 7267	$4 39	
43697—Refund of 15% freight account high explosives contract signed by shipper	3 13	
		$7 52

CRAIN PRINTERS, LTD., OTTAWA, ONT.

47834—Forms	$49 40	
49050— " No. 1561 straight bills of lading	49 40	
		$98 80

CANUCK SUPPLY CO., LTD., MONTREAL, QUE.

46807—Paint	$15 40	
49093— "	15 75	
		$31 15

CUMBERLAND AND PENNSYLVANIA RY., BALTIMORE, MD.

44057—Car service balance, September, 1913	$4 95	
		$4 95

COCHRANE STEAM LAUNDRY, COCHRANE, ONT.

44351—Laundry work, October, 1913	$15 05	
45571— " " January, 1914	14 94	
45643— " " November and December, 1913	20 77	
45659— " " " " 1913	1 31	
46457— " " February, 1914	13 20	
46416— " " March, 1914	13 87	
47387— " " April, 1914	14 43	
47687— " " May, 1914	16 23	
48254— " " June, 1914	13 15	
48703— " " May, 1914	2 32	
48922— " " July, 1914	19 57	
50027— " " August, 1914	16 84	
49640— " " September, 1914	17 73	
50182— " " October, 1914	4 33	
50396— " " October, 1914	23 06	
		$206 80

COLUMBIA PHONOGRAPH CO., TORONTO, ONT.

44598—Rubber tubing	$1 65	
45775—Dictaphone parts	10 50	
47597—Cylinders	10 00	
		$22 15

R. D. CHESTER, NEW LISKEARD, ONT.

47838—Tamarac wood	$26 75	
		$26 75

E. CRAIG, ELK LAKE, ONT.

44470—Ties	$3 00	
45449— "	115 48	
		$118 48

COBALT TOWNSITE MINING CO., COBALT, ONT.

43693—Overcharge in weight and rate, silver ore, claim No. 7199	$27 51	
44110— " " " " " 6903	40 88	
44929— " " " " " 7427	4 87	
45066— " " " " " 7627	4 26	
45190— " " " " " 7778	159 82	
46119— " " " " " 7426	29 40	
46186— " " " " " 7433	25 08	
46476— " " " " " 7439-7906	183 18	
46979—overcharge in weight and rate, silver ore, claim No. 7151	5 06	
47081— " " " " " 7970-7967-7966	319 11	
48347—Overcharge in weight and rate, silver ore, claim No. 7779	305 66	
48338— " " " " " 8064	5 25	
49669— " " " " " 7969-8152-7626	585 62	
49921—Overcharge in weight and rate, silver ore, claim No. 7437-8682	44 40	
		$1,740 10

COCKSHUTT PLOW CO., LTD., BRANTFORD, ONT.

44931—Loss account shortage one evener for spring tooth, claim No. 7106	$1 50	
44933—Loss account oil cup broken, claim No. 7609	32	
45163— " whiffletrees and seat for disc plow, claim No. 7556	4 00	
46981—Loss account handles broken in transit, claim No. 7594	3 30	
49410— " plow shares broken in transit, claim No. 8781	1 05	
		$10 17

CHAS. W. CRAWLEY, MANES, P. O., ONT.

43631—For loss H. H. goods, Earlton fire, claim No. 7134	$28 95	
		$28 95

THE CHARLTON ENGLEHART ELECTRIC LIGHT AND POWER CO., CHARLTON, ONT.

44249—Electric current supplied Charlton station, October, 1913	$8 45	
44170— " " " Nov., 1913	3 95	
45685— " " " Dec., 1913	75	
45624— " " " January, 1914	2 75	
46455— " " " Feb., 1914	95	
46990— " " " March, 1914.	65	
47157— " " " April, 1914	24 72	
47313— " " " May, 1914	45	
47720— " " " May, 1914	65	
48258— " " " June, 1914	36	
48708— " " " July, 1914	55	
50015— " " " August, 1914	80	
50393— " " " Sept., 1914	1 45	
50390— " " " October, 1914	2 12	
		$48 60

CARNIVAL OF NATION'S PROGRAMME, TORONTO, ONT.

43819—Advertisement	$30 00	
		$30 00

CATHOLIC CALENDAR, TORONTO, ONT.

44009—For advertisement and year book, 1913	$15 00	
49370— " " " " 1914	15 00	
		$30 00

CITY MEAT MARKET, ENGLEHART, ONT.

44174—Supplies auxiliary car, November, August, 1914	$12 30	
		$12 30

JOHN CRANSTON AND CO., HAMILTON, ONT.

46348—Flower pots	$23 28	
		$23 28

CANADIAN COTTON AND W. W. CO., MONTREAL, QUE.

49929—Cotton Waste	$100 38	
		$100 38

CANADIAN INDEPENDENT TELEPHONE CO., LTD., TORONTO, ONT.

45744—Repairs, etc., bill No. 12860	$42 00	
		$42 00

D. H. CORNICK, IROQUOIS FALLS, ONT.

46269—Ties	$167 35	
46749— "	44 64	
46522— "	81 45	
46658— "	21 00	
		$314 44

COCHRANE NORTLAND POST, COCHRANE, ONT.

46507—Advertisements *re* handling high explosives trains No. 1 and No. 2, Swastika	$5 00	
46785—Advertising clearing Matheson and Cochrane lots	6 70	
		$11 70

H. K. CARRUTHERS, OTTAWA, ONT.

46412—Copying and making nine lantern slides	$18 00	
		$18 00

J. CUMMINS, MASTER MECHANIC'S DEPT., NORTH BAY, ONT.

50117—Expenses, September, 1914	$1 75	
		$1 75

JAS. CONSTANTINEAU, TOMIKO, ONT.

43867—Loss account, damage by frost on 25 bags potatoes	$26 40	
		$26 40

A. CAMLEAY, HAILEYBURY, ONT.

43869—Loss account, shortage one caddy tobacco in transit, claim No. 6889	$16 62	
		$16 62

D. CHALMERS, MATHESON, ONT.

43992—Loss, beef overcarried to North Bay, Claim No. 7703	$6 60	
		$6 60

COCHRANE GENERAL STORE, COCHRANE, ONT.

43994—Loss, 4 pair boots account shortage with connections, claim No. 7454	$13 25	
		$13 25

CECIL A. CULBERT, SOUTH PORCUPINE, ONT.

45192—Loss account, damage to shipment overalls, etc., claim No. 6699	$15 10	
46121—Loss, account shortage boots, claim No. 7617	39 95	
		$55 05

CHICAGO BRIDGE & IRON WORKS, CHICAGO, ILL.

45167—Refund of demurrage, account error in billing, claim No. 7782	$34 00	
45182—Overcharge in rate, bridge builder's tools, claim No. 8127	1 80	
		$35 80

DR. D. A. CAMPBELL, NORTH BAY, ONT.

45904—Professional services, alleged injury Nicalo Giannotte train No. 1, December 5th, 1913	$18 00	
		$18 00

A. COSTANZO, COCHRANE, ONT.

46271—Amount unclaimed wages, man No. 6, July, 1913, pay roll 139	$34 71	
		$34 71

COPP STOVE CO., LTD., FORT WILLIAM, ONT.

46226—Cost of repairs to three stoves damaged in transit, claim No. 6683	$28 00	
		$28 00

CROCKETT & THARLE, COCHRANE, ONT.

46262—Loss, account damage to doors by fire Dec. 6th, 1913, claim No. 7889	$102 00	
		$102 00

COLORADO & WYOMING RY., DENVER, COL.

44429—Car repairs, May 30th, bill No. A 4296	$0 44	
		$0 44

CRERAR, ADAMS & CO., CHICAGO, ILL.

45799—Track drill	$19 00	
		$19 00

E. R. CALDWELL & CO., BRADFORD, PA.

44609—Repair parts	$5 00	
46449—Pump body	5 00	
		$10 00

CHICAGO RAILWAY EQUIPMENT CO., CHICAGO, ILL.

46773—Side bearings, S.B., 3014 E	$8 22	
		$8 22

CANADA GRIP NUT CO., LTD., MONTREAL, QUE.

44771—Square grip nuts	$36 13	
49054— " " "	34 70	
		$70 83

J. B. Corbeil, Dane, Ont.

46749—Ties	$662 85	
47220— "	37 65	
50437— "	878 64	
		$1,579 14

Cochrane Free Press, Cochrane, Ont.

46608—Advertisement, house and lot, Cochrane	$1 10	
		$1 10

Canedy Otto Manufacturing Co., Chicago, Ill.

47803—Forge parts	$60 96	
		$60 96

Cobalt Comet Mines, Ltd., Giroux Lake P.O.

43914—Rental of ground on which portion of Kerr Lake station is erected for months July to December, 1913, inc....	$6 00	
		$6 00

Cochrane Publishing Co., Cochrane, Ont.

46604—Advertising sale of lots, new sub-division Cobalt	$30 30	
47052— " " " south of track, Cochrane, Oct., 1913	7 20	
		$37 50

John Cutchley, Monteith, Ont.

46658—Ties	$11 00	
46822— "	22 36	
		$33 36

F. Cade, Master Mechanic's Dept., North Bay, Ont.

45513—Expenses, November, December, 1913, January, 1914	$13 60	
		$13 60

Chicago Short Line R.R. Co., Chicago, Ill.

46726—Car repairs, bill No. 1286, Feb., 1914	$0 54	
		$0 54

Canadian Commercial Traveller and Railway News, Toronto, Ont.

45522—Advertising	$25 00	
		$25 00

B. Corneau, Cochrane, Ont.

46658—Ties	$19 13	
48184— "	9 10	
		$28 23

Canadian Gazetteer Pub. Co., Toronto, Ont.

47465—Copy Can. Gazetteer and Dominion Business Directory..	$10 00	
		$10 00

Coniagas Mines, Ltd., Cobalt, Ont.

47380—Loss account, shortage chintz from package, claim No. 7961	$1 30	
		$1 30

CENTRAL WEST VIRGINIA & SOUTHERN RAILWAY, PHILADELPHIA, PA.

47484—Car service balance, April, 1914	$3 60	
		$3 60

W. H. COX COAL CO., LTD., TORONTO, ONT.

47750—Stove coal	$2,950 53	
50171— " "	133 28	
		$3,083 81

CANADA FURNITURE MANUFACTURING CO., WOODSTOCK, ONT.

47826—Chairs	$12 00	
49064— "	4 50	
		$16 50

CAPE GIRARDEAU NORTHERN RY., CAPE GIRARDEAU, MO.

48024—Car repairs, bill No. 28, January, 1914	$1 56	
		$1 56

CASEY COBALT SILVER MINING CO., COBALT, ONT.

48093—Loss account, damage to pump in transit, claim No. 8504	$3 02	
		$3 02

CANADIAN PULP & LUMBER CO., LTD., LATCHFORD, ONT.

48187—Siding rebate, November, 1913, to April, 1914	$1,211 73	
		$1,211 73

COBALT COMET MINES, LTD., COBALT, ONT.

48381—Rental of ground on which portion of Kerr Lake station is erected upon, January to June, 1914	$6 00	
		$6 00

THE CANADIAN, PARRY SOUND, ONT.

48411—Advertisement, homeseekers' excursion	$3 00	
		$3 00

THE CLARKSBURG REVIEW, CLARKSBURG, ONT.

48451—Advertisement, homeseekers' excursion	$1 50	
		$1 50

THE CANADIAN SPORTSMAN, GRIMSBY, ONT.

48453—Advertisement, homeseekers' excursion	$3 00	
		$3 00

THE CANADIAN ECHO, WIARTON, ONT.

48455—Advertisement, homeseekers' excursion	$1 05	
		$1 05

CURRAN BROS., THE ORILLIA NEWS-LETTER, ORILLIA, ONT.

48935—Advertisement, homeseekers' excursion	$1 00	
		$1 00

THE CONSERVATOR, BRAMPTON, ONT.

48457—Advertisement, homeseekers' excursion	$1 50	
		$1 50

CHAPMAN & WALKER, LTD., TORONTO, ONT.

48713—Repairing electric fan	$1 20	
50216—Lamp testing, Watt meter	3 50	
		$4 70

THE CHESTERVILLE RECORD, CHESTERVILLE, ONT.

48833—Advertisement, homeseekers' excursion	$4 00	
		$4 40

THE CHATSWORTH NEWS, CHATSWORTH, ONT.

48835—Advertisement, homeseekers' excursion	$0 50	
		$0 50

THE CORNWALL STANDARD, CORNWALL, ONT.

48837—Advertisement, homeseekers' excursion	$4 80	
		$4 80

THE EVENING CITIZEN, OTTAWA, ONT.

48951—Advertisement, homeseekers' excursion	$4 00	
		$4 00

THE CHRONICLE-TELEGRAPH, WATERLOO, ONT.

49053—Advertisement, homeseekers' excursion	$4 20	
		$4 20

B. CAIRNS, TORONTO, ONT.

48916—Hand stamp	$0 20	
		$0 20

CANADIAN OIL CO., LTD., TORONTO, ONT.

49083—Locomotive engine and valve oil	$168 53	
		$168 53

CANADIAN OFFICE & SCHOOL FURNITURE CO., PRESTON, ONT.

49121—Ticket case	$7 25	
47811—Stool	3 38	
		$10 63

CANADIAN MESSENGER DELIVERY CO., TORONTO, ONT.

48452—Messenger service	$2 40	
		$2 40

CANADIAN SHOVEL & TOOL CO., HAMILTON, ONT.

48570—Shovels	$23 52	
49078— "	12 00	
49639— "	35 28	
49534— "	52 92	
47609— "	144 00	
47670— "	83 22	
		$350 94

THE CANADIAN COURIER, TORONTO, ONT.

48726—Advertisement	$25 00	
		$25 00

CANADIAN ACME WEATHER CO., NORTH BAY, ONT.

48882—Weather stripping	$15 01	
48884— " "	8 00	
50212— " "	5 76	
		$28 77

CANADIAN BOOMER & BOSEHERT PRESS CO., LTD., MONTREAL, QUE.

49671—Overcharge in rate on machinery, claim No. 8744	$19 51	
		$19 51

ALEX. CAMLEAY, HAILEYBURY, ONT.

49673—Loss account, shortage cocoa from box, claim No. 8586..	$0 75	
		$0 75

CHAMBERS-FERLAND MINING CO., LTD., COBALT, ONT.

49681—Loss account, shortage 3 bundles empty ore sacks, claim No. 7713	$39 99	
		$39 99

WILFRED CADIEUX, MONTREAL, QUE.

50233—Climbers	$9 00	
		$9 00

CANADIAN GOLD CAR HEATING & LIGHTING CO., MONTREAL, QUE.

50237—Universal joints with handles	$3 00	
		$3 00

L. C. CHASE & CO., BOSTON, MASS.

49968—Plush	$36 44	
		$36 44

CANADIAN PATRIOTIC FUND, OTTAWA, ONT.

49556—Subscription of one day's pay to Canadian Patriotic Fund by employees of the Temiskaming and Northern Ontario Ry. and Nipissing Central Ry.	$3,241 32	
		$3,241 32

CENTRAL RY. SIGNAL CO., IBERVILLE, QUE.

49906—Fusees	$48 00	
		$48 00

CHARCOAL SUPPLY CO., TORONTO, ONT.

49914—Charcoal	$10 32	
49089— "	9 40	
		$19 72

CLARKE & CLARKE, NORTH BAY, ONT.

50150—Refund of deposit on contract	$1,500 00	
49567—Work performed Wahtahbeag Bridge and Russell Creek culvert to Sept. 30th, 1914, as per Progress certificate No. 1	6,431 33	
		$7,931 33

CANADA CREOSOTING CO., LTD., TORONTO, ONT.

50224—Creosoting lumber	$595 39	
		$595 39

CANADIAN RY. ACCIDENT INSURANCE CO.

47625—Premium on policy No. 73568, May 1st, 1913, to April 30th, 1914	$7,850 65	
		$7,850 65

DELAWARE, LACKAWANA & WESTERN RAILROAD, NEW YORK, N.Y.

44063—Car service balance, September, 1913	$73 35	
44433—Car repairs, bill No. 231007, September, 1913	7 27	
44284—Car service balance, October, 1913	74 60	
44986—Car repairs, bill No. 232646	40	
45297—Car service balance, November, 1913	44 10	
45408—Car service balance, December, 1913	58 50	
46041—Car repairs, bill No. 234359	29 72	
46096—Car repairs, bill No. 236612	3 69	
46349—Car service balance, January, 1914	67 05	
46574—Car repairs, bill No. 23811	1 72	
46744—Car repairs, bill No. 239807, February, 1914	1 20	
46788—Car service balance, February, 1914	165 15	
47221—Car service balance, March, 1914	157 05	
48003—Car repairs, bill No. 241958	87	
47486—Car service balance, April, 1914	9 45	
48044—Car repairs, bill No. 243619, March-April, 1914	13 53	
48249—Car service balance, May, 1914	46 35	
49646—Car service balance, June, 1914	23 40	
49294—Car repairs, bill No. 247302	5 79	
49472—Car service balance, August, 1914	52 20	
50102—Car service balance, September 1914	31 05	
		$866 44

DELAWARE & HUDSON CO., NEW YORK, N.Y.

44061—Car service balance, September, 1913	$70 35	
44431—Car repairs, bill No. 26979	12 29	
44282—Car service balance, October, 1913	83 25	
44984—Car repairs, bill No. 27363	8 41	
45295—Car service balance, November, 1913	47 25	
45406—Car service balance, December, 1913	76 50	
45973—Car repairs, bill No. 27733	72	
46347—Car service balance, January, 1914	36 90	
46665—Car repairs, bill No. 311	2 17	
46746—Car repairs, bill No. 671, January, 1914	3 37	
46786—Car service balance, February, 1914	16 65	
46860—Ticket balance, February, 1914	17 42	
48001—Car repairs, bill No. 1015	4 95	
48046—Car repairs, bill No. 1372	7 38	
48247—Car service balance, May, 1914	11 70	
49353—Car repairs, bill No. 1745	4 63	
49759—Car service balance, July, 1914	11 65	
49470—Car service balance, August, 1914	7 65	
49730—Car repairs, bill No. 2488, July, 1914	4 40	
50100—Car service balance, September, 1914	20 40	
		$447 14

JOSEPH DIXON CRUCIBLE CO., JERSEY CITY, N.J.

44617—Graphite	$6 80	
45811— "	90	
46827— "	7 10	
		$14 80

THE DUNER COMPANY, CHICAGO, ILL.

45754—Rubber stops	$2 50	
47888—Repair parts for closets	7 47	
49108— " " "	13 50	
49938—Top bowls	29 25	
		$52 72

B. W. Dunnett & Company, Ottawa, Ont.

46196—Overcharge in rate, potatoes, claim No. 7806	$6 48		
46989— " weight on hay, claim No. 7704	2 78		
47083— " demurrage, claim No. 8048	2 00		
49687— " rate and weight on hay, claim No. 8300	10 08		
			$21 34

Davis & Dunn, Limited, South Porcupine, Ont.

45070—Loss lemon extract, short in transit, claim No. 7832	$1 00		
46125— " account, damage to glass wash boards, claim No. 7707	1 12		
46200— " " shortage and damage to pickles, claim No. 7664	3 18		
46987— " " shortage case plum jam, claim No. 8014	4 14		
			$9 44

Chas. A. Duff, Renfrew, Ont.

44632—Spruce	$646 82		
45750—White pine	445 85		
48349—Refund demurrage assessed, claim No. 8716	9 00		
			$1,101 67

Adam Davis Coal Co., Ltd., Cobalt, Ont.

49646—Proportion cost of moving coal hopper account alterations in Cobalt yard layout as per arrangements with Commission	$123 52		
			$123 52

J. Drinkwater, Supervisor, North Bay, Ont.

44701—Expenses, October and November, 1913	$3 10		
44746— " December, 1913	5 90		
45519— " January, 1914	5 85		
45852— " February, 1914	7 70		
46589— " March, 1914	5 80		
47031— " April, 1914	7 45		
47631— " May, 1914	6 30		
47596— " June, 1914	7 60		
48619— " July, 1914	5 65		
48784— " August, 1914	4 65		
50121— " September, 1914	3 85		
50068— " October, 1914	5 60		
			$69 45

R. Deadman, Master Mechanic's Dept., North Bay, Ont.

43935—Expenses, October, 1913	$22 00		
44757— " November, 1913	4 25		
45487— " January, 1914	4 61		
45854— " February,, 1914	3 60		
47629— " May, 1914	1 25		
48621— " July, 1914	1 00		
			$36 71

Dominion Express Company, Montreal, Que.

46509—Proportion of telephone rental at Porcupine, year 1914	$20 00		
			$20 00

DENVER & RIO GRANDE RAILROAD, DENVER, COL.

44435—Car repairs, May and June, 1913, bill No. 2508	$1 74	
44288—Car service balance, October, 1913	14 85	
45301— " " " November, 1913	3 15	
45410— " " " December, 1913	1 35	
46353— " " " January, 1914	2 25	
46748— " " " September, 1913, to January, 1914..	2 19	
46790— " " " February, 1914	1 80	
47293—Ticket balance, March, 1914	11 35	
49296—Car repairs, bill 13116	3 39	
49732—Car repairs, bill 907	1 36	
		$43 43

DRUMMOND, MCCALL & COMPANY, MONTREAL, QUE.

44613—Boiler tubes	$3 36	
44789—Boiler tubes	28 60	
44634—Tubes	110 00	
45169—Overcharge on steel plates, claim No. 6845	57 96	
46825—Tubes	110 00	
47841—Tubes	54 24	
47870—Steel tubing	44 91	
50265—Steel tubing	125 68	
		$534 75

JOHN DOUGLAS, FOREMAN OF ENGINES, NORTH BAY, ONT.

43934—Expenses, October, 1913	$23 00	
44755— " November, 1913	25 15	
45485— " January, 1914	21 80	
45517— " December, 1913	22 40	
45848— " February, 1914	22 10	
46591— " March, 1914	19 60	
46964— " April, 1914	20 45	
47598— " May, 1914	23 55	
47600— " June, 1914	24 80	
48617— " July, 1914	18 80	
48782— " August, 1914	21 65	
50125— " September, 1914	19 70	
		$263 00

W. DAMP, BOILER INSPECTOR, C-O A. ALLAN, NORTH BAY, ONT.

44385—Expenses, October, 1913	$2 50	
44753— " November, 1913	14 50	
45515— " December, 1913	5 25	
45850— " February, 1914	14 45	
46593— " March, 1914	6 80	
47602— " May and June, 1914	4 60	
48786— " August, 1914	11 50	
50119— " September, 1914	5 65	
		$65 25

G. H. DICKSON, ENGINEERING DEPT., NORTH BAY, ONT.

50123—Expenses, July-September, 1914	$6 75	
47393—Expenses, April, 1914	2 85	
		$9 60

DELANEY AND PETTIT CO., LTD., TORONTO. ONT.

44611—Emery cloth, etc.	$41 06	
45766—Flint paper	11 65	
47845— "	7 76	
47868—Sand paper	10 29	
49145—Glue, flint paper	17 18	
50259—Sand paper	8 04	
49940—Glue	6 25	
		$102 23

DELAWARE LACKAWANNA AND WESTERN COAL CO., BUFFALO, N. Y.

44489—Stove coal	$407 39	
44522— " "	1,399 90	
45809— " "	402 19	
45710— " "	964 38	
46663— " "	716 91	
		$3,890 77

W. R. DUFF, TORONTO, ONT.

46975—Etchings	$100 00	
47362— "	200 00	
48466— "	200 00	
49825— "	100 00	
		$600 00

S. DAVID, MASTER MECHANIC'S DEPT., NORTH BAY, ONT.

48788—Expenses, August, 1914	$22 10	
50066— " October, 1914	7 35	
		$29 45

FREDERICK DANE, LAND COMMISSIONER, TORONTO, ONT.

Honorarium for year, 1914 to June 30th, 1914	$1,041 66	
Salary as land commissioner, June, 30th, 1914	729 15	
Expenses, advertising in Abitibi Post, postage	56 47	
		$1,827 28

CHAS. F. DAWSON, LTD., MONTREAL, QUE.

44812—Third copy holders	$27 00	
45817—Binders	27 00	
45748—Piercers	60	
		$54 60

DUNLOP TIRE AND RUBBER GOODS CO., LTD., TORONTO, ONT.

44733—Hose and Fittings	$60 64	
47125— "	38 93	
47674— "	22 67	
47874— "	12 36	
		$134 60

J. M. DEACON, NORTH BAY, ONT.

45471—Search n½ lot 12, con. 4, Telfy search and plans, town of Englehart	$1 30	
47633—Search plans and parcels furnished	1 15	
		$2 45

R. E. DIETZ CO., NEW YORK, N.Y.

44795—Inspector's lamps	$6 00	
50263— " "	3 00	
		$9 00

DETROIT, TOLEDO AND IRONTON RAILWAY, DETROIT, MICH.

44875—Car repairs, September, bill No. 255	$9 78	
45299—Car service balance, November, 1913	1 35	
47488—Car service balance, April, 1914	5 40	
48530—Car repairs, bill No. 15, June, 1914	33 37	
		$49 90

DENNIS WIRE AND IRON WORKS, LONDON, ONT.

45760—Area ways	$60 00	
47146—Wire screen	63 50	
		$123 50

DALTON BROS., IROQUOIS FALLS, ONT.

45312—Team carting mail account flood, April, 1913	$12 00	
		$12 00

DOMINION RADIATOR CO., TORONTO, ONT.

44791—Stove part	$0 31	
46813—Repair parts	3 44	
48576—Repair parts	3 90	
		$7 65

DOMINION ENVELOPE CO., LTD., TORONTO.

44307—Envelopes	$10 75	
45141— "	10 75	
45764— "	6 00	
47156— "	34 45	
47835— "	10 75	
47878— "	35 55	
49114— "	8 00	
50269— "	25 46	
49942— "	10 75	
		$152 46

D. DUFF, THORNLOE, ONT.

46749—Ties	$88 01	
48668— "	40 00	
		$128 01

DULUTH SOUTH SHORE AND ATLANTIC RAILWAY, MARQUETTE, MICH.

44286—Car service balance, October, 1913	$0 45	
44988— " repairs, bill No. 108143, October, 1913	3 91	
46351— " service balance, January, 1914	4 05	
48040— " repairs, bill No. 111991	2 02	
49298— " repairs, bill No. 11131179	1 87	
		$12 30

DETROIT AND MACKINAC RAILWAY, DETROIT, MICH.

44065—Car service balance, October, 1913	$4 50	
44290—Car service balance, October, 1913	4 05	
44990—Car repairs, bill No. 20065	5 81	
45303—Car service balance, November, 1913	2 70	
45412—Car service balance, December, 1913	90	
50104—Car service balance, September, 1914	3 15	
		$21 11

DRESSEL RAILWAY LAMP WORKS, NEW YORK, N.Y.

45752—Dressel Globes	$9 00	
		$9 00

HENRY DISSTON AND SONS, LTD., TORONTO, ONT.

44630—Saw blades	$7 70	
46821—Saws	3 91	
47843—Hacksaw blades	3 64	
47886— "	3 43	
49141—Saw blades	4 77	
50246—Hacksaws	5 36	
		$28 81

T. Dell, McCool P.O., Ont.

44470—Ties	$157 31	
45133— "	38 06	
46577— "	233 53	
45677— "	71 24	
		$500 14

Duluth, Winnipeg and Pacific Ry., Toronto, Ont.

45305—Car service balance, November, 1913	$0 35	
46043—Car repairs, bill No. 3663	78	
48042—Car repairs, bill 4180	7 41	
		$8 54

J. Dinsmore, Iroquois Falls, Ont.

45449—Ties	$124 32	
46269— "	135 81	
46635— "	292 92	
46635— "	94 25	
46635— "	62 15	
		$709 45

G. W. Duncan, North Bay, Ont.

44615—Vegetables for commissary	$51 80	
44793—Groceries " "	25 90	
44638—Provisions " "	50 75	
44814—Vegetables " "	4 00	
45815— " " "	7 30	
45756— " " "	5 00	
47154— " " "	37 70	
47833— " " "	201 75	
47884— " " "	182 32	
49137— " " "	193 00	
49110— " " "	229 75	
50293— " " "	136 80	
49944— " " "	67 40	
50242— " " "	41 80	
		$1235 27

Jas. Doig and Company, Latchford, Ont.

43641—Loss account, shortage one barrel apples in transit, claim 6864	$3 89	
		$3 89

Delray Connecting Railroad, Detroit, Mich.

44873—Car repairs, bill No. 11091, Aug. 1913	$2 01	
46572— " " 4095, Aug. 1913	$0 56	
		$2 57

Despatch and Tribune, North Bay, Ont.

45645—Advertisement, unsold lots, Englehart Townsite	$23 20	
45914—Copies, change of train service	2 50	
46511—Cards *re* warning, Sept. 15, 1913	3 00	
46829—Printing forms	52 00	
47724—Copies of change of time—dodgers, business and postal cards	8 75	
47892—Letter circular forms	3 00	
49012—Advertisement *re* tenders for stations, etc.	17 20	
49104—Cards *re* no smoking	3 00	
50244—Printing forms	6 50	
		$119 15

DOME MINES CO., LTD., TORONTO, ONT.

43873—Siding rebate, month of September, 1913, claim No. 7666.	$76 00	
44000— " " " October, 1913, claim No. 7754....	84 00	
44939— " " " November, 1913, claim No. 7913..	120 00	
44941—Loss, meat account, pilferage in transit, claim No. 7816..	37 18	
44520—Bituminous coal car, P.B. 11334	203 76	
45072—Overcharge in weight-machinery, claim No. 6714	107 18	
45074—Siding rebate, December, 1913, claim No. 8058	122 00	
45260—Soft coal, difference in weight, car P.B. 11334	1 53	
46482—Siding rebate, January-February, 1914, claim No. 8315..	216 00	
46985—Siding rebate, March, 1914, claim No. 8398	106 00	
47085—Loss account, castings broken in transit, claim No. 7953	13 48	
47326—Siding rebate, April, 1914, claim No. 8595	70 00	
48346— " " May and June, 1914, claim No. 8765	128 00	
49685— " " July, 1914, claim No. 8925	60 00	
49584— " " August, 1914, claim No. 9102	74 00	
		$1419 13

DOMINION REGISTER CO., LTD., TORONTO, ONT.

44657—Books	$25 00	
		$25 00

THE DEFIANCE MACHINE CO., ROCHESTER, N.Y.

45762—Ink	$0 75	
		$0 75

EUGENE DIETZGEN COMPANY, LTD., TORONTO.

44305—B.P. paper and wrapping paper	$8 00	
44662—Wrapping paper, pantograph	6 50	
45768—Paper sketch sheets, paper, supplies	27 79	
46817—Drawing material, March, 1914	19 20	
47148—Drawing paper, ink	23 23	
47839—B.P. paper, tape lines	27 93	
47882—Allan's field and office tables	2 00	
47890—Drawing material supplies	8 60	
48200—Tape lines	24 96	
49139—B.P. paper, etc.	15 57	
		$165 78

DOUCET & CHARBONNEAU, HAILEYBURY. ONT.

45171—Loss account, damage and pilferage, boots in transit with connection, claim No. 7494	$12 30	
		$12 30

DAGENAIS & POISSON, NORTH COBALT, ONT.

46198—Loss, butter and eggs, claim No. 7708	$2 56	
		$2 56

R. DESIMONE, NORTH BAY, ONT.

43797—For unclaimed wages, man No. 50, March, 1913, pay roll No. 145	$9 50	
		$9 50

DOMINION GLASS COMPANY, LTD., MONTREAL, QUE.

44636—Globes and chimneys	$42 60	
45813—Chimneys	18 00	
46823—Chimneys	12 00	
47521—Globes	10 80	
49143—Lantern globes	1 80	
49112—Chimneys	20 70	
50267—Chimneys	12 00	
		$117 90

MRS. BERT DAVIS, EARLTON, ONT.

44114—Loss, one bundle clothing—burnt in Earlton fire, claim No. 7515	$25 00	
		$25 00

A. A. DROUIN, HURRICANAW, QUE.

46280—Loss account, damage to shipment by fire and water, Cochrane, Dec. 6th, 1913, claim No. 8242	$36 75	
48344—Loss account, shortage lard, claim No. 8241	3 00	
49483—Loss account, shortage lard, claim No. 8240	6 10	
		$45 85

DOMINION REDUCTION CO., COBALT, ONT.

46480—Overcharge account, double billing, claim No. 8140	$86 18	
		$86 18

J. DUFAURE, NORTH BAY, ONT.

47144—Fertilizer	$6 00	
		$6 00

WM. DAVIES CO., LIMITED, TORONTO, ONT.

44116—Amount realized on shipment meat refused at Cobalt and disposed of to the best advantage in interests of all concerned, claim No. 7770	$10 80	
		$10 80

WM. DINSMORE, IROQUOIS FALLS, ONT.

45570—Ties	$71 62	
45570— "	62 60	
46635— "	212 84	
		$347 06

D. B. DURACK, MASTER MECHANIC'S DEPT., NORTH BAY, ONT.

44492—Expense, October and November, 1913	$8 25	
		$8 25

DETROIT TERMINAL R.R., DETROIT, MICH.

45098—Car repairs, bill No. 1565, Dec. 11th, 1913	$6 54	
		$6 54

DULUTH IRON RANGE R. R., DULUTH, MINN.

46100—Car repairs, bill T F-4004, October, 1913	$0 42	
		$0 42

DOMINION PRINTING AND LOOSE LEAF CO., OTTAWA, ONT.

44660—Tariff file	$1 90	
46815—Letter files	12 60	
47837—Tariff binders	19 89	
50248—Tariff files	19 80	
49135—Tariff files	16 92	
		$71 02

JAMES DENT, NELLIE LAKE, ONT.

46269—Ties	$117 78	
46749— "	79 30	
46882— "	57 95	
47443— "	58 00	
47443— "	39 10	
47443— "	29 50	
		$331 63

DOMINION MATCH CO., LIMITED, DESERONTO, ONT.

46278—Loss, matches destroyed by fire, Cochrane, Dec., 1913, car No. 32009, claim 7972	$96 50	
		$96 50

PHILIP E. DOWN, WAH-TAY-BEG, ONT.

46749—Ties	$178 66	
46658— "	88 30	
		$266 96

DOMINION STEEL FOUNDRY CO., LTD., HAMILTON, ONT.

47872—Steel castings	$20 03	
48198— "	2 75	
49147— "	2 57	
49102— "	5 92	
49936— "	9 72	
		$40 99

DALES, BRAMPTON, ONT.

47150—Plants	$2 60	
		$2 60

DARLING BROS., LTD., MONTREAL, QUE.

47152—Piston rods	$40 00	
		$40 00

DUNLOP'S, TORONTO, ONT.

47315—Flowers	$2 50	
48408— "	10 00	
		$12 50

ROBT. DOUGHTY, HILLVIEW, ONT.

47469—Wood	$20 25	
		$20 25

DETROIT, TOLEDO SHORE LINE, DETROIT, MICH.

48005—Car repairs, bill No. 3-185-14	$3 50	
49351—Car repairs, bill No. 6-134-14	1 87	
		$5 37

AGENT, T. & N. O. RY., DIVER, ONT.

47352—Outstanding account, mishandling of diversion orders on part of agent, North Bay, demurrage charges to be refunded, claim 8436	$3 00	
		$3 00

M. DANEFF, COCHRANE, ONT.

47382—Loss account, shortage four cases oranges in transit	$13 00	
		$13 00

R. DART, ENGLEHART, ONT.

47726—Bread for auxiliary car	$0 48	
		$0 48

W. V. Dawson, Ltd., Montreal, Que.

47876—Forms and binders ..... $39 80 — $39 80

Day, Gordon & MacDougall, Haileybury, Ont.

48262—Expenses *re* ejection of J. A. Hawkins, Agent, Cochrane.. $27 57 — $27 57

The Deseronto Post, Deseronto, Ont.

48413—Advertisement, Homeseekers' excursion ..... 1 00 — $1 00

The Drayton Advocate, Drayton, Ont.

48415—Advertisement, Homeseekers' excursion ..... $1 00 — $1 00

W. H. Davis (The Beeton World), Beeton, Ont.

48417—Advertisement, Homeseekers' excursion ..... $1 50 — $1 50

The Delhi Reporter, Delhi, Ont.

48459—Advertisement, Homeseekers' excursion ..... $2 00 — $2 00

The Dungannon News, Dungannon, Ont.

48461—Advertisement, Homeseekers' excursion ..... $1 25 — $1 25

The Dunnville Gazette, Dunnville, Ont.

48463—Advertisement, Homeseekers' excursion ..... $1 00 — $1 00

The Dunnville Chronicle, Dunnville, Ont.

48465—Advertisement, Homeseekers' excursion ..... $2 00 — $2 00

Dominion Paint Works, Walkerville, Ont.

49934—Paint . . . . $300 00 — $300 00

The Dufferin Post, Orangeville, Ont.

48465—Advertisement, Homeseekers' excursion, June 4th, 1914 .. $3 00 — $3 00

A. G. Davie, North Bay, Ont.

48717—Repairs to Smith-Premier typewriter $7 00
48930—"Safety First" stamp and pad ..... 1 60 — $8 60

Dresden Times, Dresden, Ont.

48841—Advertisement, Homeseekers' excursion ..... $3 60 — $3 60

"THE DOMINION," RIDGETOWN, ONT.

48995—Advertisement, Homeseekers' excursion	$2 00	
		$2 00

DOMINION LINENS, LIMITED, PETERBORO', ONT.

49133—Towels	$11 10	
50240— "	12 30	
		$23 40

DINGLE AND ALGER, NORTH BAY, ONT.

49149—No. 4, R. C. Cable	$7 20	
49106—No. 4, R. C. Cable	7 20	
50033—Flashlight	9 90	
		$24 30

H. C. DUNBAR, HAILEYBURY, ONT.

48526—Siding rebate, October, 1911 to August, 1913, M. P. 267	$158 00	
48528—Gravel	114 00	
49683—Overcharge in weight on flooring, claim No. 8587	1 05	
		$273 05

THE DURHAM REVIEW, DURHAM, ONT.

50035—Advertisement, Homeseekers' excursion	$1 25	
		$1 25

DOUGALL VARNISH COMPANY, MONTREAL, QUE.

48574—Varnishes	$107 06	
49547—Varnishes and paints	50 72	
		$157 78

DULUTH, MISSABE AND NORTHERN RY., DULUTH, MINN.

49300—Car repairs, bill No. 29	$2 25	
		$2 25

WM. DRUMMOND, BRISTOL, QUE.

49485—Loss two dressed hogs, claim No. 8377	$50 96	
		$50 96

H. A. DRURY CO., LTD., MONTREAL, QUE.

50261—Steel	$21 93	
		$21 93

J. DESCHAMPS, COBALT, ONT.

50437—Telegraph poles	$248 45	
		$248 45

CHAS. DEMARIS, OTTAWA, ONT.

50156—For amount of settlement alleged claim	$200 00	
Timber cut on mining claim, lot 10, con. 4, Maisonville.		
		$200 00

ERIE RAILROAD, NEW YORK, N.Y.

44067—Car service balance, September, 1913	$51 95
44165—Loss account, shortage silver ore, claim No. 4538	95 04
44292—Car service balance, October, 1913	123 30
45307— " " November, 1913	108 95
45414— " " December, 1913	82 80

ERIE RAILROAD, NEW YORK, N.Y.—*Continued.*

46045—Car repairs, bill No. 846	$25 92	
46102— " " 648	2 57	
46355—Car service balance, January, 1914	21 60	
46576— " repairs, bill No. 741, January, 1914	58	
46750— " " 718, January 25 to February 25, 1914	3 21	
46792— " service balance, February, 1914	57 15	
47223— " " March, 1914	45 00	
48009—Car repairs, bill No. 746, March, 1914	10 59	
47490—Car service balance, April, 1914	37 35	
48048—Car repairs, bill No. 706, April, 1914	7 48	
48101—Overcharge in weight on silver ore, claim No. 8061	3 82	
48251—Car service balance, May, 1914	24 30	
49355—Car repairs, bill No. 680, May, 1914	7 15	
48648—Car service balance, June, 1914	59 80	
49302—Car repairs, bill No. 674, June, 1914	13 36	
49761—Car service balance, July, 1914	21 65	
49734—Car repairs, bill No. 633, July, 1914	14 61	
		$818 18

AGENT, T. & N. O. RY., ENGLEHART STATION, ONT.

46163—Outstanding account, shipment short claim No. 8163	$1 12	
		$1 12

WM. ENGLISH, TIE INSPECTOR, NORTH BAY, ONT.

44183—Expenses, October, 1913	$26 50	
44759— " November, 1913	22 75	
44494— " December, 1913	25 30	
45489— " January, 1914	24 40	
45578— " February, 1914	22 00	
46597— " March, 1914	27 40	
46966— " April, 1914	25 80	
47395— " May, 1914	16 15	
48623— " June, 1914	19 05	
48625— " July, 1914	27 45	
48792— " August, 1914	23 10	
50127— " September, 1914	27 35	
49866— " October, 1914	23 60	
		$310 85

R E. EDWARDS, CAR DEPARTMENT, NORTH BAY.

48790—Expenses, August, 1914	$2 70	
		$2 70

E. B. EDDY COMPANY, LTD., HULL, QUE.

44619—Matches	$9 40	
44797—Toilet paper	29 33	
44664—Kraft	6 00	
44816—Blotting paper	9 20	
45768—Paper, matches, wrapping paper, toilet paper	40 16	
46831—Toilet paper	16 54	
47158— "	14 66	
47847— "	21 24	
47898—Blotters, paper and matches, wrapping paper	36 27	
49116—Toilet paper, wrapping paper, matches	49 28	
50273— "	14 66	
50250—Wrapping paper	15 00	
		$261 74

EDWARDS, MORGAN AND CO., TORONTO, ONT.

45087—For services rendered in auditing books and accounts for year ending October 31st, 1913	$298 50	
		$298 50

ENGLEHART AGRICULTURAL SOCIETY, ENGLEHART, ONT.

46880—Donation towards Agricultural Building	$100 00	
48486— " re second annual excursion Experimental Farm, Monteith, Aug. 7th, 1914	25 00	
		$125 00

TOWN OF ENGLEHART, ENGLEHART, ONT.

48410—Proportion of expenditures to July 20th, 1914, as per arrangement in connection with installation of sewerage and waterworks system	$612 14	
49378—Proportion of expenditures to September 17th, 1914, as per arrangement in connection with installation of sewerage and waterworks system	5,578 42	
		$6,190 56

J. L. ENGLEHART, CHAIRMAN, TORONTO, ONT.

Honorarium for year ending October 31st, 1914	$2,500 00	
Remuneration for year ending October 31st, 1914	2,500 00	
Travelling and other expenses for year ending October 31st, 1914	873 50	
		$5,873 50

A. EDWARDS, SUPERVISOR, NORTH BAY, ONT.

43955—Expenses, October, 1913	$9 65	
44703— " November, 1913	7 95	
44748— " December, 1913	9 25	
45491— " January, 1914	10 00	
45856— " February, 1914	10 55	
46595— " March, 1914	10 75	
47033— " April, 1914	12 60	
47635— " May, 1914	5 75	
47604— " June, 1914	10 20	
48627— " July, 1914	4 95	
		$91 65

ENGINEERING AND MINING JOURNAL, NEW YORK, N.Y.

45819—Subscription, January to December, 1914	$6 50	
		$6 50

J. C. EAMON, STEAM SHOVEL FOREMAN, NORTH BAY, ONT.

44400—Expenses, July, 1913	$9 75	
		$9 75

ELGIN, JOLIET AND EASTERN RAILWAY CO., CHICAGO, ILL.

46667—Car repairs, bill 18090, December, 1913	$0 42	
46578— " " 19351, January, 1914	46	
48007— " " 19178, February, 1914	1 85	
48050— " " 20413, November, 1914	1 85	
49357— " " 20250 April, 1914	27 36	
49975— " " 21316, June, 1914	2 00	
49736— " " 22517, July, 1914	2 44	
		$36 38

F. EATON, EARLTON, ONT.

46269—Ties	$27 20	
46635—Ties	13 70	
		$40 90

T. Eaton Company, Ltd., Toronto, Ont.

46284—Loss account, shipment toys, etc., destroyed by fire, Cochrane, December, 1913, claim 7971	$16 08	
47384—Loss account, goods destroyed at Cochrane, fire, claim No. 8386	54 75	
48348—Loss account, damage to one potato digger, claim 8701	2 50	
49586—Loss account, damage to bed spring in transit, claim 8669	2 00	
49692—Electric light fixtures	128 50	
		$203 83

B. F. Elwill Glue Company, Rockport, Mass.

44846—Glue	$13 00	
50271—Glue	3 25	
		$16 25

Employers' Liability Assurance Co., Toronto, Ont.

47218—Premium on F. G. collective joint bond No. 28492, renewal premium on collective bond, 20276	$309 31	
		$309 31

Agent at Earlton Station.

47107—Outstanding account, shipment short, claim 8363	$2 23	
49915—Amount paid W. L. Spencer for meals furnished trainmen engaged in fighting fire, Earlton Jct.	2 45	
		$4 68

George Earl, Master Mechanic's Dept., North Bay, Ont.

50129—Expenses, September, 1914	$1 00	
		$1 00

El Paso and South Western System, New York, N.Y.

44877—Car repairs, bill No. 48284, August and September, 1913	$12 06	
		$12 06

Energite Explosives, Limited, Montreal, Que.

46202—Cost of repairs to machinery, damaged in transit, claim No. 7837	$26 00	
		$26 00

Edwards & Bevins, New Liskeard, Ont.

43699—One cultivator seat and spring, lost in transit, claim No. 7007	$2 25	
43875—Loss account, one tail board, broken in transit, and freight charges, claim 7398	1 08	
		$3 33

John England, Swastika, Ont.

45556—Donation *re* cow, alleged killed, Swastika, Sept. 5th, 1913	$15 00	
		$15 00

J. J. Eagan Coal Co., Buffalo, N.Y.

44491—Coal, P. S. & N., No. 1134	$45 91	
		$45 91

ELK LAKE POWER COMPANY, LIMITED, ELK LAKE, ONT.

45916—Current supplied	Elk Lake Station, April 13th-28th, 1914	$6 25	
46513— " "	Telephone office, Elk Lake, Feb., 1914..	1 10	
46420— " "	" " March, 1914	1 25	
47523— " "	" " May, 1914	3 30	
47691— " "	Elk Lake Station, April, 1914	55	
48719— " "	Telephone Office, Elk Lake, June and July 1914 .	2 20	
49831— " "	" " August, 1914	1 10	
50401— " "	" " September, 1914	1 10	
50334— " "	" " October, 1914	1 10	
			$17 95

JAMES EMYOTTE, ELK LAKE, ONT.

46282—Loss account, shortage bag wheat, claim No. 8268	$3 00	
		$3 00

ELLIOTT & HUME, TORONTO, ONT.

47371—For amount of settlement with F. Hornung, for injuries alleged received, M. P. 96½, Train No. 47, March 9th, 1914	$125 00	
		$125 00

EASTERN CANADIAN PASSENGER ASSOCIATION. MONTREAL, QUE.

48932—General expenses in accordance with article No. 15	$25 00	
47689—Copies rules for excursions, No. 3	10 80	
47728—Copies rules for pilgrimages, No. 1.....	6 00	
48721—Copies of articles and rules E. C. P. Association	2 50	
		$44 30

EDYE-DE HURST & SONS, DENNYHURST, VIA DRYDEN, ONT.

47894—Seeds, etc.	$62 65	
		$62 65

G. ELIAS & BRO., BUFFALO, N.Y

47896—Poplar	$246 08	
		$246 08

L. CLEMENT, CONNAUGHT, ONT.

48184—Ties	$8 40	
		$8 40

THE "EXPOSITOR," BRANTFORD, ONT.

48419—Advertisement, Homeseekers' excursion	$12 60	
		$12 60

EVANS BROS., "THE AGE." STRATHROY, ONT.

48421—Advertisement, Homeseekers' excursion	$3 00	
		$3 00

"THE ECHO." HAWKESBURY, ONT.

48469—Advertisement, Homeseekers' excursion, June 5, 1914 ..	$1 50	
		$1 50

ENTERPRISE PRINTING CO., LTD., COLLINGWOOD, ONT.

48471—Advertisement, Homeseekers' excursion	$1 35	
		$1 35

JAMES A. EVOY, "CARP REVIEW," CARP, ONT.

48473—Advertisement, Homeseekers' excursion, "The Carp Review" $1 00 $1 00

EXPRESS PUBLISHING HOUSE, AYLMER, ONT.

48801—Advertisement, Homeseekers' excursion $0 70 $0 70

ELMIRA PRINTING CO., ELMIRA, ONT.

48475—Advertisement, Homeseekers' excursion $0 50 $0 50

THE EXPRESS HERALD, NEWMARKET, ONT.

48477—Advertisement, Homeseekers' excursion $1 00 $1 00

THE EVANSVILLE LEADER, EVANSVILLE, ONT.

48479—Advertisement, Homeseekers' excursion $2 00 $2 00

W. J. ELLIOTT, DAILY AND WEEKLY CHRONICLE, INGERSOLL, ONT.

48569—Advertisement, Homeseekers' excursion $5 40 $5 40

THE EXETER TIMES, EXETER, ONT.

48843—Advertisement, Homeseekers' excursion $1 00 $1 00

ELORA EXPRESS PRINTING OFFICE, ELORA, ONT.

48845—Advertisement, Homeseekers' excursion $2 40 $2 40

THE ECHO PRINTING HOUSE, SPRINGFIELD, ONT.

49005—Advertisement, Homeseekers' excursion $2 00 $2 00

THE ENTERPRISE EXPRESS, WYOMING, ONT.

49049—Advertisement, Homeseekers' excursion $0 75 $0 75

F. ERETT, CLERK DIVISION COURT, ENGLEHART, ONT.

48461—For amount of judgment and costs against C. Nick and E. Kircharcoff $76 84 $76 84

EMPLOYERS' DETECTIVE AGENCY, TORONTO, ONT.

48732—Services and expenses, April 18th to June 10th, 1914 . . . . $326 60 $326 60

C. L. FERGUSSON (PAYMASTER), NORTH BAY.

43633—Disbursements re Caniko Myperi—alleged injuries M.P. 92, Aug. 9, 1913 . . . . . $202 00
44469—Pay rolls, month of November, 1913 . . . . . 100,716 45
44178—Amount paid J. S. Millar for full release of claim re accident 326 25

C. L. Ferguson, (Paymaster), North Bay.—*Continued.*

4837—Disbursements, postage, cartage, express, etc., Nov. 1913	$83 37
4839—Disbursements, postage, cartage, express, etc., Nov. 1913	13 73
4468—Pay rolls, month of December, 1913	87,637 49
4478—Disbursements for postage stamps, etc, December, 1913	94 41
4480—Dominion Express charges and cartage, December, 1913	5 80
4524—Passenger refunds, December, 1913	170 10
5003—Amount paid Vincenzo Lombardo re alleged injury, Oct. 15th, 1913	90 00
5017—Passenger refunds, November, 1913	171 88
5143—Amount paid, re alleged injuries, Geo. Smart, North Bay, March 1st, 1913, full release	100 00
5447—Pay rolls, month of January, 1914	76,316 03
5687—Disbursements, Dominion Express, January, 1914	2 48
5689—Passenger refunds, January, 1914	198 35
5741—Disbursements, January, 1914	88 36
5560—Pay rolls, month of February, 1914	74,702 71
6105—Amount paid to Wm. Bugginshaw for full release, alleged injuries, Dec. 3rd, 1913	19 80
6107—Amount paid C. Leclair for full release, alleged injuries, March 9th, 1914	60 00
6109—Amount paid Eugene Reda for full release, alleged injuries, March 9th, 1914	125 00
6179—Amount paid D I. Caldwell for full release, alleged injuries, March 9th, 1914	25 00
6195—Amount paid Mrs. Madge Haldane for full release, alleged injuries, March 9th, 1914	60 00
5630—Disbursements, stamps, etc., February, 1914	81 55
5918—Passenger refunds, February, 1914	162 90
5920—For disbursements, express charges, etc., February, 1914	2 40
6263—For amount paid W. A. Pennock re alleged injuries received March 9th, 1914	75 00
6265—For amount paid Revillon Freres Trading Co., Ltd., re letters of credit from W. R. Maher	400 00
6275—Amount paid Lorne Wilson for full release re alleged injuries received February 23rd, 1914	19 60
6439—Pay rolls, month of March, 1914	74,561 30
6515—For disbursements, stamps, etc., March, 1914	69 71
6561—Passenger refunds, March, 1914	213 17
6700—Pay rolls, April, 1914	71,566 75
6888—Amount paid in settlement of claim of Chas. Empie, alleged injuries, March 26th, 1914	139 00
7054—Disbursements, stamps, etc., April, 1914	55 12
7056—Passenger refunds, April, 1914	129 60
7282—Disbursements, express and cartage, April, 1914	6 25
7135—For amount paid Geo. Gray for full release and discharge of all claims and demands re injuries alleged received New Liskeard, April 25th, 1914	200 00
7439—Pay rolls, May, 1914	89,542 41
7471—For disbursements, passenger refunds, stamp customs, express, May, 1914	224 49
7454—Amount paid J. P. Welsh in settlement re alleged injuries on train No. 60, May 29th, 1914	35 00
7558—For amount paid Timmins Townsite Co., Lot No. 894	87 50
7572—Pay rolls, June, 1914	100,703 20
7764—Disbursements, stamps, etc., June, 1914	76 92
8264—Account passenger refunds, June, 1914	122 70
8266—Disbursements, Dominion Express, June, 1914	18 67
8327—Amount paid Revillon Freres Trading Co. and the Hudson Bay Co. for letters of credit in favor of W. R. Maher	700 00
8437—Pay rolls, July, 1914	103,838 41
8631—Expenses, July, 1914	1 85
8723—Disbursements, stamps, etc., July, 1914	74 36
8725—Disbursements, passenger refunds, July, 1914	149 10

C. L. Ferguson (Paymaster), North Bay.—*Continued.*

48412—For amount of C.G. No. 4440 issued in favor of Miss G. Graham for services rendered commission, Aug., 1914	$15 48	
48512—Pay rolls, month of August, 1914	103,097 19	
48520—Amount paid Mr. and Mrs. Ernest Blais as donation re alleged injuries to Ernest Blais, train No. 47, July 24th, 1914	25 00	
48934—Disbursements, stamps, etc., August, 1914	52 51	
48936—Passenger refunds, August, 1914	232 57	
49887—Expenses, August, 1914	2 35	
49911—Pay rolls, September, 1914	98,964 52	
50037—Disbursements, Stamps, September, 1914	62 73	
50403—Passenger refunds, September, 1914	139 20	
50405—Disbursements, Dominion Express, September, 1914	4 48	
49826—Disbursements, stamps, etc., October, 1914	69 45	
49878—Pay rolls, October, 1914	99,208 88	
50184—Passenger refunds, September, 1914	221 40	
		$1,086,561 93

J. E. Farrell, North Bay, Ont.

43785 Plumbing performed at Cobalt, Temagami and North Bay	$71 49	
		$71 49

Foley, Welch & Stewart. Cochrane, Ont.

45600—Repair parts	$6 10	
45770—Steam coal	288 53	
		$294 63

John Forman, Montreal, Que.

44309—Lamps	$10 50	
		$10 50

Frothingham & Workman, Ltd., Montreal, Que.

45611—Iron	$27 16	
45772— "	163 86	
46356— "	30 99	
46835— "	11 44	
47525— "	14 03	
47849— "	121 09	
48578— "	4 79	
49824— "	66 49	
		$439 85

Walter Fowke, Charlton, Ont.

43804—Loss one dozen jars marmalade, broken in transit, claim No. 7356	$1 85	
		$1 85

Geo. Fordyce, Wawbewawa. Ont.

44120—Loss account shortage tobacco, claim No. 7793	$13 86	
		$13 86

N. M. Fraser, Charlton, Ont.

45009—Donation *re* heifer alleged killed Oct. 16th, 1913	$15 00	
		$15 00

FORSYTHE BROS. COMPANY, CHICAGO, ILL.

46833—Sash ratchets	$43 20	
47851—Ratchets	28 80	
49118—Ratchets	28 80	
		$100 80

ALPHONZE FILIATRAULT, IROQUOIS FALLS, ONT.

45449—Ties	$102 80	
45449— "	39 10	
46269— "	53 19	
46635— "	49 68	
46635— "	17 20	
46635— "	18 90	
46635— "	26 30	
		$307 17

FRANKEL BROS., TORONTO, ONT.

47262—Overcharge on scrap rails	$4 52	
		$4 52

F. AND N. LAWN MOWER CO., RICHMOND, IND.

47853—Lawn mowers	$18 00	
50275—Pawls	93	
		$18 93

L. M. FERGUSON, TELEGRAPH AND TELEPHONE DEPT., NORTH BAY, ONT.

43959—Expenses, October, 1913	$11 80	
44212— " November, 1913	8 45	
44496— " December, 1913	7 85	
45495— " January, 1914	14 35	
45860— " February, 1914	8 00	
46603— " March, 1914	18 65	
46968— " April, 1914	9 75	
47473— " May, 1914	7 60	
48633— " July, 1914	7 75	
48673— " June, 1914	19 75	
48798— " August, 1914	20 00	
50133— " September, 1914	14 75	
		$148 70

FORT WORTH & DENVER CITY RAILWAY, FORT WORTH, TEX.

44437—Car repairs, bill No. 17903	$0 78	
46047— " " " 17328	2 22	
46582— " " " 18340	1 76	
		$4 76

J. FENNESSY, HAILEYBURY, ONT.

44167—Loss whiskey and brandy, claim No. 7417	$4 93	
44118—Loss ale missing from case, claim No. 7418	85	
46459—Board supplied lineman, February, 1914	78 90	
		$84 68

FLORIDA EAST COAST RAILWAY, ST. AUGUSTINE, FLA.

46580—Car repairs, bill B-15830	$4 90	
48052—Car repairs, bill B-16946, March, 1914	2 11	
48650—Car service balance, June, 1914	17 10	
		$24 11

FORT DODGE, DES MOINES & SOUTHERN R.R. CO., BOONE, IOWA.

44069—Car service balance, September, 1913		$9 00	
44294— " " " October, 1913		90	
45416— " " " December, 1913		2 25	
			$12 15

W. FLOOD, MCCOOL P.O., ONT.

44470—Ties		$89 68	
45449— "		110 69	
45570— "		55 30	
46749— " and switch sets		271 54	
50437— "		80 00	
			$607 21

A. FELDMAN, KRUGERDORF, ONT.

46199—Ties		$574 74	
50437— "		65 80	
50446— "		224 20	
			$864 74

A. A. FRASER, RESIDENT ENGINEER'S DEPT., NORTH BAY, ONT.

44210—Expenses, November, 1913		$8 50	
46601— " December, 1913, January and February, 1914		17 90	
46610— " March, 1914		18 05	
47639— " May, 1914		33 40	
47641— " March and April, 1914		14 35	
47606— " June, 1914		25 50	
48796— " July, 1914		24 50	
49889— " August, 1914		32 40	
50072— " September, 1914		28 50	
			$203 10

J. W. FOGG, SCHUMACHER, ONT.

47328—Refund of charges assessed in error car lumber, claim No. 8440		$10 00	
			$10 00

E. FRANK IROQUOIS FALLS, ONT.

44470—Ties		$152 77	
44470— "		79 85	
45133— "		215 91	
45449— "		142 08	
45570— "		69 35	
46522— "		111 48	
			$771 44

ALLAN FERGUSON, NORTH BAY, ONT.

44752—Expenses, December, 1913		$5 00	
			$5 00

FRISCO REFRIGERATOR LINE, ST. LOUIS, MO.

44071—Car service balance, September, 1913		$2 67	
			$2 67

S. J. Faught, Supervisor, Englehart, Ont.

43957—Expenses, October, 1913		$8 45	
44705— " November, 1913		7 85	
44750— " December, 1913		6 90	
45493— " January, 1914		3 75	
45858— " February, 1914		8 15	
46599— " March, 1914		6 95	
47035— " April, 1914		7 90	
47071—In full settlement *re* injuries alleged received by L. G. Faught, deceased, Englehart yard, March 1st 1913, as per agreement, May, 1914		1,000 00	
47637—Expenses, May, 1914		8 85	
47608— " June, 1914		7 50	
48629— " July, 1914		8 55	
48794— " August, 1914		9 60	
50131— " September, 1914		8 10	
50070— " October, 1914		7 05	
			$1,099 60

Mrs. A. M. Fuller, Haileybury, Ont.

43701—Loss account, damage to H. H. goods in transit, claim No. 6995	$20 50	
		$20 50

W. A. Fraser, Diver, Ont.

43870—Donation *re* three pigs alleged killed, train No. 46, Oct. 8th, 1913	$5 00	
		$5 00

Frank S. Froats, Giroux Lake, Ont.

46991—Loss account, damage to stove, claim 7367	$5 00	
		$5 00

N. K. Fairbanks Co., Ltd., Montreal, Ont.

47113—Loss, soap, destroyed by fire, claim No. 7891	$40 50	
		$40 50

Robert A. Ferguson, Swastika, Ont.

44253—Teaming performed during August and September, 1913	$45 50	
		$45 50

Fort Worth & Rio Grande, Fort Worth, Tex.

46049—Car repairs, bill 720	$15 48	
49738—Car repairs, bill 2519	1 44	
		$16 92

Fort Worth & Denver City, Fort Worth, Tex.

49359—Car repairs, bill 21447	$1 24	
		$1 24

H. Foster, Iroquois Falls, Ont.

46269—Ties	$7 06	
47443— "	3 45	
47730— "	75	
		$11 26

FREIGHT CLAIM ASSOCIATION, RICHMOND, VA.

47397—Annual assessment, May 13th 1914 to June 16th, 1915 .... $15 00 — $15 00

J. H. FORBES, ELK LAKE, ONT.

47443—Ties . . . . . $145 38 — $145 38

THOS. FIRTH & SONS, LTD., TORONTO, ONT.

47676—Steel . . . . . $42 44 — $42 44

M. FLOODY, HAILEYBURY, ONT.

47900—Tamarac and slabwood . . . . . $11 00 — $11 00

THE FREEMAN PRESS, KINGSON, ONT.

48423—Advertisement, Homeseekers' excursion . . . . . $0 90 — $0 90

FAWCETT & CO., AYR, ONT.

48425—Advertisement, Homeseekers' excursion . . . . . $1 50 — $1 50

THE FOREST FREE PRESS, FOREST, ONT.

48847—Advertisement, Homeseekers' excursion . . . . . $2 00 — $2 00

FOWKE & GERARD, CHARLTON, ONT.

48350—Loss account, damage to box dry goods, claim 8573 .... $4 98
49412—Overcharge, weight on hay and damage to syrup, claim 8569-8817 . . . . . 4 27 — $9 25

FARMERS ADVOCATE AND HOME MAGAZINE, LONDON, ONT.

48488—Advertising, September 3rd, 1914, and 2 half-tones illustrating advertisement—A Temiskaming Farm, Harvesting in New Ontario. . . . . $94 00 — $94 00

FUNK & WAGNALLS CO., NEW YORK, N.Y.

49120—Dictionaries . . . . . $3 40 — $3 40

FROST WIRE FENCE CO., LTD., HAMILTON, ONT.

50277—Gates with locking chains . . . . . $37 30 — $37 30

GRAND TRUNK RAILWAY, MONTREAL, QUE.

43643—Claims as per statement attached to vouchers $141 17
43645—Overcharge in rate, lumber and timber, claim No. 6969 .. 45 30
43647—Loss and damage to gasoline in transit, claim No. 7068 .. 34 55
43787—Claims as per statement 235 00
43803—For proportion joint switching, North Bay terminals, month of September, 1913 . . . . . 55 58

GRAND TRUNK RAILWAY, MONTREAL, QUE.—*Continued.*

43805—Proportion of commission on European rail orders, October, 1913	$68 71
43829—Account interline freight balance, November, 1913	5,000 00
43831—For one-third net loss in operating three parlor cafe cars between Toronto and Englehart, July, 1913	10 25
43863—Freight settlement, week ended Nov. 14th, 1913	358 37
43877—Overcharge in weight, horses, claim No. 6793	48
43981—Amount interline freight balance, Nov., 1913	5,000 00
44073—Car service balance, September, 1913	2,101 10
44137—Ticket balance, June and August, 1913	1,424 28
44169—Claims, as per statement attached	142 57
44185—Proportion of commission paid on European rail orders, March, 1913	124 30
44187—Supplies furnished private cars, August, 1913	13 35
44189—50% charges made against Canadian Pacific Ry., Oct., 1913	75
44191—Account interline freight balance, November, 1913	2,000 00
44255—Joint switching, October, 1913	149 93
43844—Loss dry goods, claim No. 7667 and claim No. 7651	157 92
43846—Settlement of claim No. 7346, June, 1914	6 13
44357—Proportion of commission on European rail orders	39 36
44441—Car repairs, June and July, 1913, bill Nos. 16211-15727	10 19
44443—Car repairs July to September, 1913, bill Nos. 142631-2-3	166 68
43900—Account freight settlement, week ended Dec. 7th, 1914	849 08
44485—Account interline freight balance, November, 1913	10,000 00
43958—Account freight settlement, week ended December 14th, 1913	239 58
43998—Overcharge in weight, ties, claim No. 7,500	2 20
44050—Interline freight balance, December, 1913	6,000 00
44697—Joint switching, North Bay terminals, November, 1913	287 20
44070—Interline freight balance, December, 1913	6,000 00
44122—Claims as per statement attached	210 98
44182—Account interline freight balance, December, 1913	7,000 00
44184—Proportion of expenses of cars between Toronto and Englehart, Oct., 1913	160 58
44296—Car service balance, October, 1913	1,883 05
44386—Ticket balance, September and October, 1913	1,063 25
44418—Proportion of commission of European rail orders, Sept. and August, 1913	18 49
44420—Proportion of commission of European rail orders, Sept., 1913	8 51
44526—Proportion of commission of European rail orders, bill No. 14611	6 99
44528—50% charges derived by scaling cars for C.P. Ry.	75
44991—Overcharge rate and weight silver ore, claim No. R53783	43 67
44993—Overcharge on car coal, claim No. 7610	4 00
45011—Account interline freight balance, January, 1913	2,000 00
45041—Proportion of commission paid on European rail orders, October, 1913	18 25
45073—Account interline freight balance, January, 1914	3,000 00
45089— " " " "	2,000 00
44708—Interline freight balance, November, 1913	12,611 72
44710— " " December, 1913	22,586 04
44994—Car repairs, bill No. 136499, Jan. to May, 1913	430 38
45173—Claims as per statement attached to voucher	65 37
45309—Car service balance, November, 1913	1,449 67
45419—Ticket balance, November, 1913	1,742 29
45076—Claims as per statement attached to voucher	151 19
45118—Account interline freight balance, February, 1914	2,500 00
45691—50% charges made against C.P.R. for scaling cars, North Bay Junction, December, 1913	75
45134—Account interline freight balance, February, 1914	2,500 00
45737—One-third net loss operating cafe cars between Toronto and Englehart, Oct., 1913	235 27

GRAND TRUNK RAILWAY, MONTREAL, QUE.—*Continued.*

45739—Joint switching, North Bay terminals, December, 1913 ..	$146 88
45198—Claims as per statement attached	31 01
45264—Joint switching, January, 1914	51 55
45266—Account interline freight balance, February, 1914	1,000 00
45418—Car service balance, December, 1913	2,035 80
45504—Ticket balance, December, 1913	6,426 47
45526—Account interline freight balance, February, 1914	2,000 00
45749—Interline freight balance, January, 1914	15,197 87
45941—Car repairs, July to Oct., 1913	96 19
45943—Car repairs, bill No. 16928	60
45977— " " Nos 18231, 17938, 18232	15 35
46051— " " 147659, 147660	33 36
46129—Overcharges in rates and weights, claims Nos. 7254, 7642, 7018, 7661, 7745, 8034	44 87
46185—Account interline freight balance, March, 1914	2,500 00
45658—Supplies for exhibition car and private cars	39 96
45660—One-third net loss operating cafe cars, Toronto and Englehart, November, 1913	158 11
46203—Account interline freight balance, March, 1914	4,500 00
45922—Proportion of expenses parlor cafe cars, between Toronto and Englehart, January, 1914	155 36
45924—Joint switching, North Bay terminals, Feb., 1914	21 73
46104—Car repairs, September to December, 1913	76 35
46106—Car repairs, bills Nos. 19079, 18536, May to Dec., 1913	13 00
46204—Overcharge in weight silver ore, claims Nos. 7787, 6018, 7604, 7766, 7674, 6923, 7562, 7662, 7650	42 48
46297—Account interline freight balance, March, 1914	3,000 00
46357—Car service balance, January, 1914	1,941 65
46423—Ticket balance, January, 1914	920 34
46461—Gas supplied car Abitibi and supplies car Sir James, Jan., 1914	209 11
46517—50% charges made against Canadian Northern Ry. for Water, Nov.-Dec., 1913	3 00
46286—Shortages as per claims Nos. 6518, 7464, 7465, 7878	60 51
46669—Proportion cost of freight tariffs, Nov.-Dec., 1913, Feb., 1914	2 13
46703—Proportion of commission paid on European rail order, May, 1912, to Jan., 1914	100 84
46330—Account interline freight balance, April, 1914	1,500 00
46342—Amount freight settlement, week ended April 21st, 1914..	677 60
46358—Account interline freight balance, April, 1914	2,000 00
46424—Supplies furnished car "Sir James," February, 1914	294 54
46484—Claims as per statement attached to voucher, Jan. 30th, to Dec. 8th, 1913	57 62
46514—Overcharge in weight, oils, claim No. 7118, April 16th, 1912	10 76
46524—Account freight settlement for the week ended April 30th, 1914	102 49
46747—Interline freight balance, February, 1914	4,685 58
46536—Ticket balance, February, 1914	2,269 96
46584—Car repairs, bills Nos. 152904-9-152910, Jan., 1914	104 28
46586— " " 19783, Aug., 1913	4 86
46752— " " 155242-2-40-39, Jan.-Feb., 1914	23 84
46754— " " 19624-20227, Dec.-Jan., 1914	32 65
46794—Car service balance, February, 1914	1,362 40
46819—For interline freight balance, March, 1914	5,380 03
46943—Interline freight balance, October, 1913	12,706 90
47058—Joint switching, North Bay terminals, March, 1914	5 65
47060—Proportion of commission paid on westbound European traffic, February, 1914	3 56
47160—Overcharge on bill No. 13858, repairs to pass. car No. 101235	4 86
47023—Account freight settlement for week ended May 14th, 1914	125 68
47059—Account freight settlement for week ended May 21st, 1914	370 34

GRAND TRUNK RAILWAY, MONTREAL, QUE.—*Continued.*

47087—Overcharges in weight on tanks, vegetables, eggs, claims Nos. 7215, 7946, 8112	$92 17
47119—Account interline freight balance, May, 1914	1,500 00
47225—Car service balance, March, 1914	1,383 75
47295—Ticket balance, March, 1914	2,479 30
47311—Account interline freight balance, May, 1914	2,500 00
46973—Freight settlement for week ended May 7th, 1914	980 15
47317—Proportion of expense loss on parlor cafe cars, Toronto-Englehart, Jan.-March, 1914	568 72
47479—Joint switching, North Bay terminal, April, 1914	43 31
47677—Interline freight balance, April, 1914	7,630 10
47693—Commission on ticket sales, March, 1914, supplies and equipment damaged on cafe car No. 2609	67 46
47731a—Joint switching, North Bay terminals, May, 1914	65 91
48013—Car repairs, bills Nos. 15862-158259-158258-158257	139 45
48015— " " " 21012	16 22
48093—Interline freight balance, May, 1914	4,594 75
47368—Account interline freight balance, week ending June 14th, 1914	2,000 00
47418—Account interline freight balance, June, 1914	2,000 00
47440— " " " "	2,500 00
47456—Account freight settlement, week ended June 30th, 1914	261 07
47492—Car service balance, April, 1914	2,456 23
47546—Ticket balance, April, 1914	2,415 45
47562—Account interline freight balance, June, 1914	3,000 00
47734—Overcharge on rental locomotives, joint swtg. service, Dec., 1911, to July, 1913	1,311 35
47766—Proportion of expense loss on parlor cafe cars, Toronto-Englehart, March, 1914	248 11
48058—Car repairs, bill Nos. 160593-160596-159256	177 25
48056—Car repairs, bill No. 21693	8 78
48126—Proportion of commission, November, 1913, European traffic	57 72
48270—Joint switching, North Bay terminals, June, 1914	266 81
48304—Interline freight balance, June, 1914	6,172 93
48103—Claims as per statement attached to voucher	58 72
48175—Account interline freight balance, July, 1914	2,500 00
48179—Account interline fright balance, July, 1914	1,000 00
48253—Car service balance, May, 1914	2,054 58
48351—Claims as per statement attached to voucher	27 07
48383—Account interline freight balance, July, 1914	2,500 00
48529—Account interline freight balance, July, 1914	2,500 00
48727—Proportion of commission on European traffic, April, 1914	15 65
48729—Proportion of commission on European traffic, May, 1914	44 78
49151—Repairs to freight cars, bill 101234	47 94
49363—Car repairs, bills 163408-9-410-12-14, November, 1913 to May, 1914	524 45
49365—Car repairs, bills 22164	20 65
48456—Account freight settlement, week ended August 14th, 1914	264 11
48458—Account freight balance, August, 1914	1,000 00
48468—Account freight settlement, week ended August 21st, 1914	1,174 71
48490—Interline freight balance, August, 1914	2,000 00
48508—Account interline freight balance, week ending August 31st, 1914	1,500 00
48652—Car service balance, June, 1914	1,522 80
48706—Ticket balance, June, 1914	147 10
48858—Interline freight balance, August, 1914	10,414 64
48938—Joint switching, North Bay Terminals, July, 1914	364 66
49014—Proportion of commission paid on European traffic, April, 1914	21 89
49122—Proportion main line, unloading charges, North Bay Terminals, line service charges, supplies furnished car "Sir James"	180 25
49304—Car repairs, bills 167585-6-7, 167591	637 50
49473—Account interline freight balance, September, 1914	2,500 00

GRAND TRUNK RAILWAY, MONTREAL, QUE.—*Continued.*

49487—Claims as per statement attached to voucher	$146 93	
49489—Overcharge in rate on Lidgerwood unloader claim 8696	6 21	
49559—Account interline freight balance, September, 1914	2,000 00	
49647—Account interline freight balance, September, 1914	5,500 00	
49763—Car service balance, July, 1914	1,526 15	
49939—Interline freight balance, July, 1914	9,511 00	
49977—Car repairs, bill 101233, March 8th to April 30th, 1912	55 04	
50041—Proportion loss operating parlor cafe car, Toronto to Englehart, May and June, 1914	264 23	
50043—Joint switching, North Bay Terminals, August, 1914	100 05	
50407—Supplies furnished car "Sir James," Toronto, July, 1914	16 56	
49414—Claims as per statement attached to voucher	107 82	
49444—Account interline freight balance, October, 1914	6,000 00	
49474—Car service balance, August, 1914	2,176 90	
49520—Ticket balance, August, 1914	3,353 79	
49536—Account interline freight settlement, October, 1914	3,000 00	
49588—Claims as per statement attached to voucher	268 65	
49650—Proportion expenses to cars running between Toronto and Englehart, May, July, August, 1914	530 78	
49740—Car repairs, bill No. 23985	9 67	
49806—Account interline freight balance, October, 1914	3,000 00	
49830—Joint switching, North Bay Terminals, Sept. 14th, 1914	51 66	
49832—Proportion cost of tariffs, 50% amount charged C. P. R. account weighing cars at North Bay	2 51	
50106—Car service balance, September, 1914	2,086 75	
50186—Supplies furnished car "Sir James" at Toronto, July and August, 1914	17 96	
50138—Ticket balance, September, 1914	2,850 89	
50400—Supplies furnished car "Sir James," Hon. Mr. Hearst's trip to Hearst, August, 1914	8 14	
50402—Joint switching, North Bay Terminals, October, 1914	51 11	
50444—Interline freight balance, October, 1914	16,117 04	
50439—Interline freight balance, September, 1914	13,479 46	
		$325,101 14

L. A. GREENE & COMPANY, COCHRANE, ONT.

45202—Loss account, one grate bar broken in transit, claim 7455	$5 26	
		$5 26

GALT, PRESTON & HESPELER RAILWAY, GALT, ONT.

45175—Outstanding account, overcharge in weight, empty kegs, claim No. 7104	$20 94	
		$20 94

GUNNS, LIMITED, WEST TORONTO.

46127—Loss account, shortage smoked meat, claim 8098	$40 37	
		$40 37

GALENA SIGNAL OIL COMPANY, TORONTO, ONT.

44625—Oils	$942 10	
44670—Oil and grease	996 87	
45827—Oils	119 56	
45776— "	157 78	
46845— "	244 50	
47166— "	714 17	
47735— "	98 22	
47908— "	558 76	
49155—Grease and oil	279 91	
49126—Oils	502 88	
50281— "	455 89	
49950—Grease and oils	378 43	
		$5,449 07

GEO. GORDON & COMPANY, CACHE BAY, ONT.

44395—Lumber	$548 41	
44852—Lumber	1,279 52	
44926—Pine	629 33	
45825—Lumber	642 12	
47733*a*— "	999 28	
50285— "	1,966 25	
		$6,064 91

GENERAL SUPPLY COMPANY OF CANADA, LTD., OTTAWA, ONT.

44621—Pipe fittings	$1 55	
44850— "	82 19	
44928— "	16 00	
45823— "	33 52	
45774— "	29 10	
46847— "	41 03	
47162— "	21 39	
47284— "	58 28	
47733— "	16 20	
47904— "	8 30	
49153— "	29 40	
50283— "	25 87	
49952— "	21 70	
50252— "	4 38	
		$388 92

GLOBE PRINTING CO., TORONTO, ONT.

44257—Advertising in Christmas number of Globe, 1913	$100 00	
45019—Subscription, November 30th, 1913, to November 30th, 1914	5 00	
48599—Advertisement, Homeseekers' excursion	12 60	
		$117 60

T. GRIFFIN, CRANEMAN, NORTH BAY, ONT.

49648—Expenses, September, 1914 (21st to 23rd)	$2 00	
		$2 00

F. R. GIBSON, HAILEYBURY, ONT.

43926—Work performed on hot water heating system, Earlton Sta.	$424 80	
44072—Material and labor supplied for heating system, Earlton Sta.	124 80	
45647—Material and labor supplied for heating system, Earlton Sta., and agent's house, Haileybury	467 40	
45661—Repairs to toilets, Haileybury Station, Dec. 6th, 1914	1 50	
45270—Work performed on heating system, Haileybury Sta.	4 75	
45656—Grates for hot water boiler, Earlton Station, and labor	7 50	
46486—Loss account damage to radiator, claim No. 8030	3 97	
48268—Repairs to water taps, Haileybury Station	6 35	
50188—Installing heating systems, Heaslip, Elk Lake and Iroquois Falls stations, progress certificate No. 2 to October 31st, 1914	301 37	
		$1,342 14

GARLOCK PACKING CO., HAMILTON, ONT.

44623—Packing	$19 75	
45534— "	15 41	
46841— "	5 69	
47164—Disc	2 80	
49124—Packing	17 37	
		$61 02

W. A. Graham, Storekeeper and Purchasing Agent, North Bay, Ont.

44475—Services rendered Commission, November, 1913	$185 00		
44466— " " " December, 1913	185 00		
45235— " " " January, 1914	200 00		
45566— " " " February, 1914	200 00		
46281— " " " March, 1914	200 00		
46696— " " " April, 1914	200 00		
47435— " " " May, 1914	200 00		
47578— " " " June, 1914	200 00		
48443— " " " July, 1914	200 00		
48639— " " " May, 1914	27 90		
48518— " " " August, 1914	200 00		
48886—For amount paid Fasile Beche for potatoes	17 85		
49657—Services rendered Commission, September, 1914	200 00		
49882— " " " October, 1914	200 00		
			$2,415 75

Grand & Toy, Toronto, Ont.

45039—Stationery as per statement attached to voucher	$48 54	
45097— " " " " "	50 20	
45145—Letter files	71 73	
46465—Pins, pencils, paste, transfer cases, etc.	30 83	
46998—Stationery as per statement attached to voucher	41 80	
47880— " " statement " "	49 26	
50190— " " statement " "	103 10	
		$395 46

Great North Western Telegraph Co. of Canada, Toronto, Ont.

43789—Message to Algonquin Park, Oc. 15th, 1913	$ 32	
43954— " Palmer, Nov. 20th, 1913	26	
44074— " Nov. 8th, 1913	50	
44180—Messages, October and November, 1913	4 39	
45575—Telegraph service, Dec. 1st-23rd, 1914	1 84	
45268—Message, S. B. Clement, Jan. 16th, 1914	50	
45314— " " " Jan. 6th, 19th, 22nd, 1914	2 06	
46519— " December 1st to 30th, 1913	2 59	
46521— " February 12th to 28th, 1914	3 10	
46422— " North Bay and Chicago, March 13th, 1914	65	
47165—Messages, April 7th to April 29th, 1914	8 78	
47695— " May 8th to 20th, 1914	2 98	
47732 " June 24th, 29th, 1914	1 25	
48272— " June 4th, 8th, 17th, 22nd 1914	7 53	
48734— " July, August, 1914	2 04	
49016— " July 12th to 27th, 1914	6 80	
50039— " August 1st, 6th, 8th, 24th, 1914	3 05	
50398— " October 19th, 1914	41	
		$49 05

Wm. Goldstein & Co., Toronto, Ont.

43833—Supplies for private car Lieut.-Governor's trip to Sault Ste. Marie	$5 50	
44186—Supplies for private car, inspection trip, Dec., 1913	5 50	
45693— " " Toronto Board of Control exc'n	22 00	
47073— " " May, 1913, inspection trip	5 50	
47117— " " Lieut.-Gov's trip to Galt, Ont.	10 50	
50185— " " funeral late Sir James Whitney	6 00	
49624—Tobacco and pipes, prizes for foremen	3 30	
		$58 30

B. Greening Wire Co., Ltd., Hamilton, Ont.

45632—Wire netting	$158 47	
46233—Riddle cloth	84 04	
47032—Annealed wire	4 78	
47680—Cable wire	409 65	
47754—Soft copper wire	7 95	
48333—Steel rope, riddle cloth	19 73	
49549—Wire	29 22	
49863—Riddle cloth, steel rope, copper wire	80 69	
		$794 53

Gutta Percha & Rubber Mfg. Co., Ltd., Toronto, Ont.

44315—Hose	$298 87	
44542— "	126 10	
44544—Packing, etc.	70 21	
45079—Rubber goods	12 22	
44672—Matting	20 00	
46290—Loss account, rubber destroyed in fire, claim No. 8067	147 33	
47902—Force cups	1 64	
		$676 37

W. A. Griffin, Supt. of Traffic, North Bay, Ont.

44473—Services rendered Commission, November, 1913	$250 00	
44464—Services rendered Commission, December, 1913	250 00	
44498—Expenses, November and December, 1913	26 75	
45233—Services rendered Commission, January, 1914	260 00	
45521—Expenses, December, 1913, and January, 1914	9 40	
45564—Services rendered Commission, February, 1914	260 00	
45862—Expenses, January, 1914	7 50	
46279—Services rendered Commission, March, 1914	260 00	
46567—Expenses, March, 1914	25 90	
46694—Services rendered Commission, April, 1914	260 00	
47433— " " month of May, 1914	260 00	
47475—Expenses, April and May, 1914	15 50	
47576—For services rendered Commission, June, 1914	260 00	
48441—Services rendered Commission, July, 1914	260 00	
48635—Expenses, June and July, 1914	20 40	
48516—Services rendered Commission, August, 1914	260 00	
48800—Expenses, August, 1914	17 40	
49655—Services rendered Commission, September, 1914	260 00	
49868—Expenses, September and October, 1914	25 00	
49884—Services rendered Commission, October 1914	260 00	
		$3,247 85

Gowans, Kent & Co., Ltd., Toronto, Ont.

44924—Tumblers	$5 85	
47906—Supplies for private car "Sir James"	2 42	
49416—Loss, damage to crockery in transit, claim No. 8643	16 28	
		$24 55

Glick & Nichols, Cleveland, Ohio.

44666—Computing tables	$3 00	
		$3 00

Gurney Foundry Co., Ltd., Toronto, Ont.

44659—Stove	$18 70	
44530—Stoves	47 25	
44848—Repair parts for station stove	4 50	
45821—Stove parts	1 40	
45784—Grates	2 10	
49948—Boiler, stove and repair parts	105 12	
		$179 07

GRAND RAPIDS & INDIANA RY., GRAND RAPIDS, MICH.

44075—Car service balance, Sept., 1913	$3 15	
44439—Car repairs, March to June, 1913, bill No. 15702	12 86	
44298—Car service balance, October, 1913	10 00	
45420—Car service balance, December, 1913	4 95	
45975—Car repairs, bill No. 16076	0 94	
47494—Car service balance, April, 1914	0 45	
		$32 35

GULF AND SHIP ISLAND RAILROAD, GULPORT, MISS.

44447—Car repairs, bill No. 26058	$2 68	
44992—Car repairs, bill 26393	54	
45311—Car service balance, November, 1913	4 05	
45981—Car repairs, bill No. 26651	3 56	
48255—Car service balance, May, 1914	7 20	
48654— " " June, 1914	5 40	
49476— " " August, 1914	5 85	
		$29 28

GORDON, DAVIES COMPANY, LTD., HAILEYBURY, ONT.

43806—Loss account, shortage one crate bananas and fruit, claim 7327	$2 25	
45200—Overcharge in weight, apples, claim No. 7758	4 70	
45262—Supplies furnished private car "Sir James"	75	
47402—Overcharge in weight on meat, claim No. 8185	26 64	
48355—Overcharge in weight on meat, claim No. 8195	27 40	
		$61 74

OLIVER GARVIN, NORTH BAY, ONT.

45649—Horse and rig, cartage, February 12th, 1912 to April 7th, 1913	$12 60	
		$12 60

GREAT NORTHERN RAILWAY, ST. PAUL, MINN.

44445—Car repairs, bill No. 16817-18454	$5 37	
46488—Overcharge in rate on timber, claim 7784, bill 6135	5 60	
46588—Car repairs, bill 4568	4 29	
48017—Car repairs, bill 6587-8253	2 75	
48309—Ticket balance, May, 1914	17 50	
49361—Car repairs, bill 12901	25	
49621— " bill 15345	2 56	
49742— " bill No. 17575	1 64	
		$39 96

W. J. GAGE & COMPANY, LTD., TORONTO, ONT.

44311—Envelopes	$28 69	
45780— "	13 50	
46839— "	33 47	
		$75 66

GEORGIA RAILWAY, AUGUSTA, GA.

46053—Car repairs, bill 30000, Oct. 6th, 1913, to Nov. 26th, 1913	$4 23	
48054— " " 31784, April, 1914	5 84	
49306— " " 32518, June, 1914	2 46	
49367— " " 32159, August, 1914	25	
		$12 78

GEORGIA, SOUTHERN & FLORIDA RAILROAD, MACON, GA.

45313—Car service balance, November, 1913	$1 80	
47496— " " April, 1914	3 60	
48257— " " May, 1914	3 15	
49369—Car repairs, bill L-298	14 18	
		$22 73

GULF, COLORADO & SANTA FE RAILWAY, GALVESTON, TEXAS.

45979—Car repairs, bill No. 4237, October, 1913	$6 39	
46108—Car repairs, bill 4232-G, Nov., Dec., 1913	30 16	
46590—Car repairs, bill No. 6085, Jan. 1914	1 10	
		$37 65

GRASSELLI CHEMICAL CO., LTD.,

50279—Muriatic acid	$3 27	
		$3 27

GRAND INTERNATIONAL BROTHERHOOD OF LOCOMOTIVE ENGINEERS, MONTREAL, QUE.

44923—Advertising in souvenir book, 1914	$60 00	
46362—For donation towards meeting to be held in Halifax, July 20th to 24th, 1914	50 00	
		$110 00

S. GREENWOOD, LISKEARD, ONT.

46294—Loss account, shortage oats, claim No. 7419	$8 10	
		$8 10

GILLIES BROS., LTD., GILLIES DEPOT, ONT.

46534—In settlement of claims of Charles O'Leary, and A. Raydon, for loss of baggage, No. 286238, claim No. 7831	$56 00	
		$56 00

GILMORE AND PITTSBURG RAILWAY, ARMSTEAD, MONT.

44302—Car service balance, October, 1913	$4 05	
45317—Car service balance, November, 1913	2 70	
		$6 75

GRILLS, ELLIOTT & GRILLS, NEW LISKEARD, ONT.

46206—Loss account, shortage one case meat, claim 7262	$57 35	
		$57 35

JOHN GEORGE, HEASLIP, ONT.

44831—Ties	$2 80	
46522 "	43 03	
47220— "	21 00	
		$66 83

H. GREATOREX, WAH-TAY-BEG, ONT.

46522—Ties	$83 64	
		$83 64

GOUROCK ROPEWORK EXPORT COMPANY, MONTREAL, QUE.

45782—Manilla rope	$15 20	
46843— "	7 02	
49128— "	5 18	
		$27 40

B. Gardiner, Thornloe, Ont.

46882—Telegraph poles	$80 00	
47220— "	49 00	
48868— "	203 16	
48868— "	263 79	
		$595 95

General Manifold & Printing Co., Franklin, Pa.

44668—Forms	$44 88	
49946—Forms (trip books)	44 20	
		$89 08

J. Gault, Iroquois Falls, Ont.

45144—Ties	$40 00	
		$40 00

F. Gagnon, Iroquois Falls, Ont.

46658—Ties	$79 07	
48184— "	46 60	
		$125 67

Goodyear Tire & Rubber Co., Ltd., Toronto, Ont.

44313—Rubber Bands	$12 50	
44540— " "	20 09	
45602— " "	10 04	
47028— " "	9 55	
47678— " "	10 54	
47756— " "	20 09	
49130— " "	20 50	
50254— " "	10 25	
		$113 56

Charles Godfrey, Homer Siding, Ont.

45449—Ties	$112 27	
45570— "	52 80	
46749— "	118 53	
47443— "	56 15	
		$339 75

Graham Nail Works, Toronto, Ont.

44317—Wire nails	$136 95	
44735— " "	91 14	
45077— " "	73 89	
45536— " "	21 07	
46463— " "	20 09	
47030— " "	32 73	
47527— " "	93 83	
47682— " "	4 90	
47752— " "	78 44	
48531— " "	19 99	
48571— " "	43 51	
48580— " "	102 07	
49551— " "	17 20	
49361— " "	57 28	
		$793 09

GREEN BAY & WESTERN R.R. CO., GREEN BAY, WIS.

44300—Car service balance, October, 1913	$4 05	
45315—Car service balance, November, 1913	4 95	
		$9 00

GRIFFIN & BRINKERHOFF, WINDSOR, ONT.

16837—Wheel truing brake shoes	$115 50	
		$ 115 50

GEORGIA, FLORIDA & ALABAMA RLY., AUGUSTA, GA.

48656—Car service balance, June, 1914	$0 90	
		$ 0 90

GEORGIA & FLORIDA RAILWAY, AUGUSTA, GA.

45319—Car service balance, November, 1913	$4 05	
		$4 05

GREENVILLE, SPARTANBURG & ANDERSON RY., CHARLOTTE, N.C.

45383—Car service balance, November, 1913	$6 75	
		$6 75

GERMAN AMERICAN TANK LINES, CHICAGO, ILL.

44077—Car service balance, September, 1913	$0 77	
44304—Car service balance, October, 1913	77	
		$1 54

G. B. GEROUX, COCHRANE, ONT.

46658—Ties	$120 68	
47220—Ties	63 20	
		$183 88

J. GAMBLE, NUSHKA, ONT.

46199—Ties	$25 27	
46199— "	275 62	
47443— "	12 20	
47731— "	138 15	
		$451 24

C. A. GIROUX, SUPT. OF TRAFFIC DEPT., NORTH BAY, ONT.

45523—Expenses, January, 1914	$4 00	
43946—Expenses, November, 1913	3 25	
		$7 25

A. P. GERVAIS, NEW LISKEARD, ONT.

44002—Loss oranges, shortage in transit, claim No. 7173	$22 66	
48354—Loss, sugar and freight charges, claim 8520	4 63	
		$27 29

MOEL GOUIN, COBALT, ONT.

44004—Loss, damage to chairs in transit, claim No. 7373	$2 00	
		$2 00

GALVESTON, HARRISBURG & SAN ANTONIO, HOUSTON, TEXAS.

48011—Car repairs, bill No. 094269	$0 46	
50140—Ticket balance, September, 1914	19 21	
		$19 67

THOMAS J. GREY COMPANY, BOSTON, MASS.

45778—Seeds	$8 10	
		$8 10

H. GRAY & COMPANY, TORONTO, ONT.

45786—Wool waste	$15 63	
		$15 63

MISS G. GRAHAM, NORTH BAY, ONT.

46698—For services rendered Commission, April, 1914	$30 00	
47437— " " " May, 1914	60 00	
47580— " " " June, 1914	60 00	
48211— " " " July, 1914	60 00	
		$210 00

L. GIES, DUNDAS, ONT.

46292—Loss account, damage to bath in transit, claim 7687	$12 75	
		$12 75

G. GRECO, NORTH BAY, ONT.

46360—For unclaimed wages, man No. 174, September, 1913, pay roll, No. 97	$3 80	
		$3 80

A. GOULD, CAR INSPECTOR, NORTH BAY, ONT.

47643—Expenses, May, 1914	$2 50	
		$2 50

GERMAN KALI WORKS, INC., TORONTO, ONT.

47737—Potash	$5 20	
		$5 20

GRANT & KENNEDY, NEW LISKEARD, ONT.

48355—Siding rebate, March and April, 1914, claim 8596	$51 59	
48324—Shortage in weight on coal in transit, claim 7142	61 97	
50287—Lumber	262 50	
		$376 06

THE GALT REPORTER, LTD., GALT, ONT.

48481—Advertisement, Homeseekers' excursion	$1 05	
		$1 05

THE GAZETTE, BARRIE, ONT.

48483—Advertisement, Homeseekers' excursion	$3 60	
		$3 60

THE GANANOQUE JOURNAL, GANANOQUE, ONT.

48485—Advertisement, Homeseekers' excursion	$1 25	
		$1 25

C. A. GOODFELLOW & SON, THE GAZETTE & CHRONICLE, WHITBY, ONT.

48487—Advertisement, Homeseekers' excursion	$1 00	
		$1 00

GERMAN POST PRINTING & PUBLISHING CO., PEMBROKE, ONT.

48489—Advertisement, Homeseekers' excursion ..... $5 00 — $5 00

W. F. GOOD, ELK LAKE, ONT.

48609—Ties ..... $94 50 — $94 50

T. J. GRACEY, SUPERINTENDENTS' ACCOUNTANT, NORTH BAY, ONT.

48637—Expenses, July, 1914 ..... $1 75
50135—Expenses, September, 1914 ..... 1 85 — $3 60

O. H. GAUTHIER, HULL, QUE.

49607—Overcharge in weights on oats, claim No. 6560 ..... $63 56 — $63 56

A. N. GAGNON, INSPECTOR OF NEW BUILDINGS, NORTH BAY, ONT.

48675—Expenses, July, 1914 ..... $8 55
48804— " August, 1914 ..... 29 45
50074— " September and October, 1914 ..... 53 80 — $91 80

THE GUELPH MERCURY, GUELPH, ONT.

48851—Advertisement, Homeseekers' excursion ..... $8 00 — $8 00

THE GUELPH HERALD, GUELPH, ONT.

48853—Advertisement, Homeseekers' excursion ..... $10 00 — $10 00

THE GUIDE ADVOCATE, WATFORD, ONT.

49059—Advertisement, Homeseekers' excursion ..... $1 00 — $1 00

THE GOODWARDS CO., COBALT, ONT.

48352—Refund of amount collected on case of fuse, claim No. 8527 $23 95 — $23 95

MISS T. GREGORY, NORTH BAY, ONT.

48542—Services rendered, August 7th to August 31st, 1914 .... $48 39
49659— " " September, 1914 ..... 60 00
49886— " " October, 1914 ..... 60 00 — $168 39

E. M. GOODMAN, AGENT, T. & N. O. RY., NEW LISKEARD, ONT.

48544—Extra compensation, August, 1914 ..... $10 00
48445— " July, 1914 ..... 10 00
49661— " September, 1914 ..... 10 00
49886— " October, 1914 ..... 10 00 — $40 00

B. GRAY, CAR CLEANER, NORTH BAY, ONT.

48802—Expenses, August, 1914 ..... $1 30 — $1 30

GORDON, IRONSIDE & FARES CO., LTD., WINNIPEG, MAN.

49491—Overcharge in rate on frozen beef, claim 8741	$12 50	
		$12 50

THE GANANOQUE REPORTER, GANANOQUE, ONT.

49834—Advertisement, Homeseekers' excursion	$1 50	
		$1 50

F. R. GIBSON, HAILEYBURY, ONT.

49530—Plumbing performed on various stations, Sept. 14th	$1,125 00	
49828—Labor and material in eave-troughing Earlton station, September, 1914	24 80	
		$1,149 80

GERMAN AMERICAN CAR CO., CHICAGO, ILL.

50108—Car service balance, September, 1914	$0 81	
		$0 81

BRITISH HOTEL, CHARLTON, ONT.

45662—Board and stage fare, Paul Marceau and one man, Nov. 11th, 1913	$7 00	
44199—Board supplied, Paul Marceau and one man, November 4-6, 1913	6 00	
		$13 00

HAMILTON STAMP & STENCIL WKS., LTD., HAMILTON, ONT.

44319—Dater	$3 50	
44930— "	2 50	
45829— "	12 50	
45788—Repairs to dater, stamp	4 65	
46851—Dater and stamps	2 90	
47172—Dater and stamps	5 18	
47741—Stamp, daters	3 07	
49140—Stamp, daters	8 94	
50289—Repairs to numbering machine, ink	3 25	
50258—Repairs to ticket punch, repairs to dater	2 69	
		$49 18

MILTON L. HERSEY CO., LTD., MONTREAL, QUE.

45926—Analysis and report on samples paint material	$40 75	
47740—Analysis sample water	5 00	
(Batteries steel passenger cars)		
50047—Analysis and reports, wells Nos. 1 and 2, Englehart	30 00	
		$75 75

R. HOPKINS, IROQUOIS FALLS, ONT.

44831—Ties	$89 22	
44831— "	272 52	
45449— "	220 77	
45570— "	188 00	
46269— "	100 34	
46635— "	144 38	
46635— "	89 65	
		$1,104 88

HAMER & MCGUINTY, EARLTON, ONT.

45083—For amount of settlement re alleged claims covered by release Jan. 26th, 1914, re sub-contract Elk Lake Branch, agreements McCaffery and McQuigge, dated May 30th, 1912	$1,000 00	
		$1,000 00

A. HOPKINS, IROQUOIS FALLS, ONT.

44831—Ties	$313 92	
46635— "	98 54	
		$412 46

HARRIS TIE & TIMBER CO., NEW LISKEARD, ONT.

48184—Ties	$6 25	
48357—Refund of demurrage charges, claim No. 8670	2 00	
49590—Siding rebate, June to September, 1914, claim No. 9125	186 00	
50446—Switch sets	79 05	
		$273 30

HOCKING VALLEY RAILROAD, COLUMBUS, OHIO.

44306—Car service balance, October, 1913	$8 10	
45321— " " November, 1913	4 05	
45422— " " December, 1913	7 20	
46796— " " February, 1914	3 15	
48060—Car repairs, bill No. 84,622	62	
48259—Car Service balance, May, 1914	4 05	
48658— " " June, 1914	22 05	
49765— " " July, 1914	9 90	
		$59 12

R. W. HUNT & COMPANY, LTD., MONTREAL, QUE.

43791—Inspection of culvert pipe, Aug. 6th, 1913	$1 00	
44076— " culvert pipe, Sept., 1913	5 85	
47742— " rails, May 29th, 1914, to June 13th, 1914	225 00	
48573— " joints and bolts, May-April, 1914	43 20	
		$275 05

HAYES TRACK APPLIANCE COMPANY, GENEVA, N.Y.

44627—Derails	$117 00	
44858—Operating stands	33 00	
47170—Derails	117 00	
47743— "	33 00	
49161— "	161 00	
		$461 00

HOLLINGER GOLD MINES, LTD., PORCUPINE, ONT.

46671—Car soft coal	$83 29	
46993—Loss litharge and freight, claim No. 7565	11 30	
47747—Duty on coal	4 24	
47404—Damage to lifting device in transit, claim No. 7441	20 00	
		$118 83

GEORGE H. HEES, SON & CO., TORONTO, ONT.

44674—Curled hair	$27 50	
44854—Webbing	13 00	
45937—Blinds, shades, tassel	32 47	
45794—Carpet binding	17 17	
46853—Shades	74	

GEO. H. HEES, SON & CO., TORONTO, ONT.

47168—Shades	$1 78	
47910—Cloth, nails	2 04	
48202—Gimp, shade	6 63	
49157—Window shades	2 88	
49132—Shades	3 84	
50256—Hair	56 10	
		$164 15

HUDSON BAY COMPANY, NORTH BAY, ONT.

43881—Loss, 30 lbs. sugar in transit, claim No. 7272	$1 40	
44205—Supplies furnished J. G. McMillan, March to June, 1913..	309 46	
44082—Freight and charges on one case and one bag	4 35	
43703—Shortage, one case coffee in transit, and freight charges, claim 6438	11 54	
43705—Loss, canned goods account shortage in transit	18 33	
48731—Supplies furnished *re* survey James Bay	173 38	
50411—Supplies furnished *re* survey James Bay	94 53	
49422—Loss account, shortage empty barrels in transit, claim 8383	19 93	
		$632 92

THE HAILEYBURIAN, HAILEYBURY, ONT.

43964—Advertising sale of land	$15 00	
45699—Advertising restaurant privileges, Temagami	5 00	
46523—Tenders for clearing Matheson	2 50	
47169—Advertisement *re* lots, Cochrane	3 00	
47738—Advertisement *re* tenders for installing and supplying water heating system in station (Haileybury)	10 35	
48944—Advertising, tenders for lots, Matheson	5 60	
		$46 25

MUNICIPAL CORPORATION OF TOWN OF HAILEYBURY, HAILEYBURY, ONT.

45577—One quarter year, water rates to March 31st, 1914	$16 99	
46707— " " June, 30th, 1914	16 99	
48199— " " September 30th, 1914	17 00	
50049—Material supplied in connection with water service, Haileybury station	21 77	
49656—Water supplied station for quarter ending Dec. 31st, 1914	17 00	
		$89 75

KING EDWARD HOTEL, ENGLEHART, ONT.

43837—Board supplied J. Sinton, R. S. Huntington	$4 00	
44201— " engineers, Nov. 7th, 8th, and 11th, 1913..	9 00	
44363— " " Nov. 19th, and 20th, 1913	4 00	
44424— " " December, 1913	10 00	
45274— " " February, 1913	6 50	
47171— " " May, 1913	3 15	
47736— " " June, 1913	6 00	
48274— " " June and July, 1914	9 35	
48735— " " July, 1914	41 50	
49020— " " August, 1914	7 90	
50053— " " August, 1914	33 20	
50187— " " September and October, 1914..	24 80	
		$159 40

HEATON'S AGENCY, TORONTO, ONT.

45473—Copy Heaton's Annual for 1914	$1 00	
		$1 00

HAILEYBURY CONSTRUCTION CO., LTD., HAILEYBURY, ONT.

44015—For full release and discharge from all claims and discharge from all claims and demands *re* construction Matheson station	$500 00	
		$500 00

ADAM HALL, PETERBORO', ONT.

46366—Stove repair parts	$56 86	
47739— " " "	29 94	
		$86 80

HAWKESBURY LUMBER COMPANY, JOCKO, ONT.

43879—Overcharge in weight, horses	$1 93	
		$1 93

HERALD PRINTING CO., NEW LISKEARD, ONT.

43966—Advertising sale of lots	$16 32	
47744—Advertising *re* lots in Latchford	14 16	
48942—Subscription to Temiskaming Herald, June 20th, 1914 to June 20th, 1915	1 00	
49833—Advertising sale of Matheson lots	5 28	
		$36 76

AGENT, T. & N. O. RY., HAILEYBURY STATION, ONT.

43747—Outstanding account, one can oil refused, empty, claim No. 7483	$0 83	
44044—Outstanding account, double billing, claim No. 7732	10 61	
44080—Amount of claim No. 5947	15 00	
45106—Outstanding account, over-assessed car demurrage	1 00	
45108—Outstanding account, shipment short, claim 7998	6 57	
46165— " " " " 7846	1 47	
47015— " " " " 8222	93	
48135—Account overcharge, weight on oils, claim 8311	3 85	
48400—Outstanding account, shipment short, claim 8334	2 59	
		$42 85

J. HAMILTON.

48868—Ties and switch sets	$256 37	
50437—Switch sets	153 60	
		$409 97

HYDRO ELECTRIC POWER COMMISSION OF ONTARIO, TORONTO, ONT.

49134—Laco lamps, 110/100	$13 92	
50295—Mazda train lighting lamps, 25 Watt	57 75	
50260—34 pear shaped, clear carbon lamps	18 26	
		$89 93

S. R. HART & COMPANY, TORONTO, ONT.

43983—Letter heads for office of Secretary-Treasurer	$32 50	
45695— " " Chairman	15 00	
46673— " " Chairman	75 00	
46368— " " Secretary-Treasurer	32 50	
48864— " " "	16 25	
49629— " " "	65 33	
		$236 58

STANLEY HOTEL, MATHESON, ONT.

44193—Board supplied H. J. McAuslan, W. Moore	$7 50	
47529—	17 31	
		$24 81

F. H. HOPKINS & COMPANY, MONTREAL, QUE.

46705—Chain	$159 50	
49163—Swinging cables	42 50	
49956—Sheaves	85 50	
		$287 50

MR. AND MRS. JOHN HUTSON, TROUT MILLS, ONT.

46612—Use of house as waiting room, lighting station lamp and two lamp chimneys supplied, October 13th, to March 1st, 1914	$15 20	
		$15 20

ALLAN HILLS EDGE TOOL COMPANY, LTD., GALT, ONT.

45613—Axes	$46 80	
45538—Bench axes	15 68	
45604—Axes	15 68	
47034—Axes	7 84	
48193—Adzes and axes	38 10	
		$124 10

HAMILTON BRIDGE WORKS COMPANY, HAMILTON, ONT.

43986—Steelwork delivered at North Bay for viaduct at Wild Goose Crossing, M.P. 196.8	$21,255 25	
43988—Steelwork delivered at North Bay for viaduct at Boston Creek M.P. 153.5 and Wild Goose Crossing	21,935 45	
45443—Steelwork delivered at North Bay for viaduct at Boston Creek and Wild Goose Crossing	9,615 72	
45831—Beams	40 07	
45664—Board supplied men employed at M. 196.8	59 20	
45792—Angles	31 80	
46267—Steelwork, delivered and erected, Wild Goose Crossing, M.P. 196.8	6,547 96	
46364—Board inspector, February and March, 1914	37 95	
46890—Steelwork, delivered and erected, Boston Creek	5,003 65	
47179—Crossing M.P. 153.5, certificate No. 3	18 00	
49913—Progress certificate No. 4, final steel viaduct, Wild Goose Crossing, M.P. 196.8	825 72	
49954—Angles, beams	63 58	
		$65,434 35

KING GEORGE HOTEL, COCHRANE, ONT.

43848—Loss account, shortage, two cases liquor and freight claim No. 7633	$18 51	
44016—Loss account, shortage, one case liquor, claim No. 7368	14 26	
44018—Demurrage, over-assessed account, error of agent, claim No. 7700	10 00	
44422—Supplies for private car Abitibi	6 00	
45043—Supplies furnished private car "Sir James" and "Abitibi"	4 30	
48105—Loss account, shortage, three cases whiskey, claim No. 7993	33 45	
		$86 52

THE HOLDEN COMPANY, LTD., MONTREAL, QUE.

44799—Headlight parts	$67 55	
44676— " carbons	21 02	
44856— " parts	10 16	
45790—Iron pins	17 50	
46849— "	26 81	
47745—Carbons	10 80	
49159—Headlight supplies, air hose	45 70	
48736—Iron, elect headlights, cases and reflectors	149 80	
50297—Carbons for P.N.E. headlight	10 80	
49958—Pins, repair parts	60 13	
		$420 27

THE HOTEL CEDRIC, COCHRANE, ONT.

50409—Board and lodging, September, 1914 (engineers)	$137 50	
49836— " " October, 1914 (engineers)	7 50	
50192— " " August, 1914 (engineers)	96 00	
		$241 00

KING GEORGE HOTEL, ELK LAKE, ONT.

44203—Board supplied B. Holbrook, Sept. and Oct., 1913	$65 71	
		$65 71

THE VENDOME HOTEL, HAILEYBURY, ONT.

43801—Board supplied, R. A. Huntingdon, J. Sinton, October 22nd, 1913	$8 00	
44078—Board supplied engineers, Nov. and Dec., 1913	18 50	
45663— " " " December, 1913	18 50	
45272— " " " Jan. and Feb., 1914	9 00	
46467— " " " March 10-13, 1914	10 00	
47175— " " " April 13 to 16, 1914	12 00	
47401— " " " April to May, 1914	12 30	
47645— " " " May, 1914	72 40	
47642— " " " June, 1914	179 20	
48940— " " " July, 1914	88 40	
49018— " " " August, 1914	8 40	
50051— " " " August, 1914	60 00	
49652— " " " Sept., 1914	1 50	
05404— " " " Oct., 1914	6 40	
		$504 60

HERALD PRINTING CO., HAMILTON, ONT.

45697—Advertising display, Dec. 27, 1913	$10 00	
47699— " re tenders for Temagami restaurant	20 72	
		$30 72

H. HASTINGS, EARLTON, ONT.

45144—Ties	$155 73	
45570— "	51 91	
46522— "	222 18	
		$429 82

NORMAN W. HENLEY PUBLISHING CO.

46426—Three charts, office of Supt. of traffic	$0 75	
47697—Books, prevention of railroad accidents	20 00	
		$20 75

HUNTINGDON & BROAD TOP MOUNTAIN R.R. & COAL CO., PHILADELPHIA, PA.

45323—Car service balance, November, 1913	$13 05		
46359— " " January, 1914	5 85		
			$18 90

HOUSTON & TEXAS CENTRAL, HOUSTON, TEXAS.

49308—Car repairs, bill No. 73658	$0 89		
			$0 89

THE QUEEN'S HOTEL, COCHRANE, ONT.

44195—Board supplied, October, 1913	$60 00		
44197— " " November, 1913	55 00		
44426— " " Dec., 1913	4 00		
47177— " " April 8th to May 10th, 1914	47 00		
47647— " " May, 1914	19 00		
48535— " " Dec. 28th, 1913, to July 4th, 1914	78 50		
			$263 50

F. HEASMAN, NEW LISKEARD, ONT.

44006—Loss account, shortage, one case eggs, claim No. 7229	$7 20		
47330— " butter, short, with connections, claim No. 8384	32		
49493— " milk, damaged in transit, claim No. 8400	33		
49418— " damage to biscuits in transit, claim No. 8839	60		
			$8 45

HOTEL GOLDFIELDS, TIMMINS, ONT.

44361—Board, supplied engineers	$19 50		
47399—Board and lodgings supplied engineers	26 00		
47649— " " " May, 1914	124 50		
			$170 00

F. HARTZKE, MCCOOL P.O., ONT.

45133—Ties	$166 35		
45133— "	190 28		
45449— "	690 13		
			$1,046 76

JNO. HARRISON, SONS CO., OWEN SOUND, ONT.

47751—Tie plugs	$75 00		
			$75 00

J. HOULE, NUSHKA, ONT.

45449—Ties	$221 12		
46109— "	319 18		
			$540 30

A. M. HICKS, TORONTO, ONT.

49390—Salary, October, 1914	$62 50		
			$62 50

H. P. Hanan, Toronto, Ont.

43767—Services rendered the Commission, November, 1913		$60 00	
43902— " " " December, 1913		60 00	
45217— " " " January, 1914		30 00	
45832— " " " February, 1914		60 00	
46227— " " " March, 1914		60 00	
46680— " " " April, 1914		60 00	
46963— " " " May, 1914		60 00	
47306— " " " June, 1914		60 00	
48155— " " " July, 1914		60 00	
			$510 00

B. Holbrook, Engineering Dept., North Bay, Ont.

44754—Expenses, December, 1913		$5 50	
45497— " January, 1913		8 00	
46605— " February and March, 1914		20 05	
47037— " April, 1914		12 60	
48234— " May and June, 1914		5 40	
48806— " August, 1914		3 15	
50076— " September and October, 1914		8 30	
			$63 00

Dr. C. N. Haentschel, Haileybury, Ont.

43635—Professional services rendered Caniko Mijperi, re accident, train No. 1, M.P. 92, Aug. 9th, 1913	$5 00	
		$5 00

J. S. Hamilton & Co., Brantford, Ont.

43649—Loss account, one barrel wine, delay in reaching destination, claim No. 7509	$24 70	
		$24 70

The British Hotel, Charlton, Ont.

49654—Board supplied engineers, Oct. 21st, 1914	$3 75	
		$3 75

Ralph R. Hoover, North Bay, Ont.

44359—For full release and discharge from all claims and demands re alleged injury, North Bay Junction, Oct. 26th, 1913	$11 55	
		$11 55

D. Halliday, Cane P.O., Ont.

44831—Ties	$98 25	
45449— "	46 35	
45570— "	474 69	
46199— "	105 74	
46577— "	279 36	
47220— "	301 55	
47220— "	236 78	
47220— "	137 50	
		$1,680 22

J. Hylands, Cobalt, Ont.

45078—Loss account, damage to desk in transit	$5 00	
		$5 00

MAPLE LEAF HOTEL, HAILEYBURY, ONT.

46208—Loss account, whiskey lost in transit, claims No. 8054-8089	$4 95	
		$4 95

R. S. HUNTINGTON, NORTH BAY, ONT.

44756—Expenses, November and December, 1913	$10 40	
		$10 40

FRED. HARROP, IROQUOIS FALLS, ONT.

45133—Ties	$278 23	
45449— "	86 12	
45449— "	92 74	
46749— "	192 61	
46658— "	89 94	
46882— "	41 75	
46882— "	47 40	
47220— "	96 75	
		$925 54

SIMON HENEROFSKY, ENGLEHART, ONT.

45133—Ties	$90 58	
46199— "	259 06	
46199— "	433 93	
46635— "	45 10	
46635— "	128 90	
46635— "	219 85	
		$1,177 42

R. R. HURD, NEW LISKEARD, ONT.

48852—Donation re cow alleged killed, M.P. 111, July 15th, 1912	$25 00	
		$25 00

GORDON HIMSWORTH, NORTH BAY, ONT.

49138—Potatoes	$6 50	
		$6 50

HARRIMAN & NORTH EASTERN, CINCINNATI, OHIO.

45325—Car service balance, November, 1913	$2 70	
		$2 70

R. W. HANNA, TORONTO, ONT.

49573—Loss, potatoes, account damaged by frost, claim No. 5662	$31 00	
		$31 00

HAM & GRANT, ENGLEHART, ONT.

45316—Supplies furnished auxiliary car, Dec., 1913, and Jan., 1914	$11 77	
48733—Supplies furnished Auxiliary car, March, 1914, to June, 1914	46 38	
		$58 15

HAMILTON STOVE & HEATER CO., HAMILTON, ONT.

45833—Grates	$0 60	
		$0 60

HART OTIS CAR CO., MONTREAL, QUE.

45835—Hand brake parts	$14 00	
		$14 00

R. HOWARD, HAILEYBURY, ONT.

49420—Loss on dressed hog, claim No. 8851	$14 95	
		$14 95

JOHN HASTINGS, EARLTON, ONT.

45144—Ties	$23 40	
46522— "	27 46	
48868— "	10 80	
		$61 66

R. D. HOPKINS, IROQUOIS FALLS, ONT.

47374—Overcharge in weight on settler's effects	$51 06	
		$51 06

HAILEYBURY COAL YARDS, HAILEYBURY, ONT.

46855—Ice	$602 80	
		$602 80

HUNT-SPILLER MANUFACTURING CORPORATION, BOSTON, MASS.

49136—Crosshead liners	$3 51	
		$3 51

EMIN HALLIDAY, CANE, ONT.

46269—Ties	$195 23	
		$195 23

HUNTER & CO., LTD., PEMBROKE, ONT.

48356—Overcharge in weight on potatoes, claim No. 8155	$123 24	
		$123 24

LOUIS HILLER, NUSHKA, ONT.

46269—Ties	$116 74	
46635— "	58 75	
		$175 49

JAMES HYDE, MONTEITH, ONT.

46658—Ties	$8 60	
46852— "	18 13	
		$26 73

J. HOOKER, MATHESON, ONT.

49495—Loss, account damage to flour and potatoes, claim No. 7930	$4 00	
		$4 00

ROBERT B. HOLMES, COBALT, ONT.

46210—Refund demurrage paid on car, claim No. 8254	$1 00	
		$1 00

WM. HYNES, MATHESON, ONT.

48107—Overcharge in weight on hay, claim No. 8429	$2 49	
		$2 49

HUDSON PARKER, LTD., COBALT, ONT.

47167—Uniform suit for constable ..... $25 00 — $25 00

HOTEL CANADA, NEW LISKEARD, ONT.

47173—Board and lodging supplied, April 23rd and 24th, 1914. $6 00 — $6 00

W. M. HALL & LUKOW, COCHRANE, ONT.

47443—Ties ..... $290 78 — $290 78

E. HALLIDAY, CANE, ONT.

47443—Ties ..... $96 85 — $96 85

THOMAS HOOK, TORONTO, ONT.

47531—Toronto, office furniture insurance No. 271813 ..... $4 20 — $4 20

D. HILL NURSERY CO., DUNDEE, ILL.

47701—Trees ..... $26 90 — $26 90

A. HOFER, MONTEITH, ONT.

47731—Ties $20 51
48184— " 9 70
— $30 21

HAGGARD & MARISSON, CHICAGO, ILL.

47749—Bunks ..... $261 60 — $261 60

THE HUNTSVILLE FORESTER, HUNTSVILLE, ONT.

48491—Advertisement, Homeseekers' excursion ..... $1 00 — $1 00

HERALD PRINTING CO., HAMILTON, ONT.

48493—Advertisement, homeseekers' excursion New Liskeard.... $10 00 — $10 00

HESPELER HERALD NEWSPAPER AND JOB PRINTING PLANT, HESPELER, ONT.

48495—Advertisement, homeseekers' excursion ..... $2 50 — $2 50

"THE HERALD," DUNDALK, ONT.

50045—Advertisement, homeseekers' excursion ..... $1 00 — $1 00

HALE BROS., ORILLIA PACKET, ORILLIA, ONT.

48933—Advertisement, homeseekers' excursion ..... $1 50 — $1 50

S. H. HARDING, PORT ROWAN NEWS.

48985—Advertisement, homeseekers' excursion ..... $2 00 — $2 00

THE HERALD REFLECTOR, THORNBURY, ONT.

49019—Advertisement, homeseekers' excursion	$1 50	
		$1 50

THE HERALD PRESS, WALKERVILLE, ONT.

49057—Advertisement, homeseekers' excursion	$0 60	
		$0 60

HILL, CLARK, FRANCIS, LTD., NEW LISKEARD, ONT.

49689—Advertisement, homeseekers' excursion	$10 00	
		$10 00

F. D. HELPS, OTTAWA, ONT.

49691—Overcharge in weight on potatoes, claim No. 7864	$19 76	
		$19 76

WM. HEARNS, MILBERTA, ONT.

49693—Overcharge in weight on settler's effects, claim 8619	$8 60	
		$8 60

INTERCOLONIAL RAILWAY OF CANADA, MONCTON, N.B.

44079—Car service balance, September, 1913	$81 45	
44139—Ticket balance, September, 1913	32 86	
44449—Car repairs, bill No. 172718, August and September, 1913	1 69	
44308—Car service balance, October, 1913	70 20	
44388—Ticket balance, October, 1913	72 78	
44998—Car repairs, bill No. 1057-69	2 50	
45327—Car service balance, November, 1913	39 15	
45421—Ticket balance, November, 1913	262 82	
45424—Car service balance, December, 1913	39 15	
45506—Ticket balance, December, 1913	243 16	
45983—Car repairs, bill No. 176472, value of I.C.R. car 17598 destroyed	173 11	
46110—Car repairs, bill No. 178425, December, 1913	4 35	
46361—Car service balance, January, 1914	39 90	
46425—Ticket balance, January, 1914	118 02	
46798—Car service balance, February, 1914	23 40	
46862—Ticket balance, February, 1914	115 69	
47227—Car service balance, March, 1914	22 95	
47297—Ticket balance, March, 1914	39 18	
48019—Car repairs, bill No.184891-184955	68 39	
47498—Car service balance, April, 1914	24 30	
48109—Overcharge in rate on sand pipes, claim No. 8276	2 92	
48261—Car service balance, May, 1914	15 75	
49373—Car repairs, bill No. 188543	75	
49310—Car repairs, bill No. 191063	8 76	
49767—Car service balance, July, 1914	11 65	
49811—Ticket balance, July, 1914	230 35	
49478—Car service balance, August, 1914	15 40	
49514—Ticket balance, August, 1914	862 62	
50110—Car service balance, September, 1914	5 85	
50142—Ticket balance, September, 1914	378 30	
48708—	137 03	
		$3,144 43

ILLINOIS CENTRAL RAILROAD, CHICAGO, ILL.

45329—Car service balance, November, 1913	$11 70	
48066—Car repairs, bill 3146, March, 1914	22 06	
48311—Ticket balance, May, 1914	15 80	
49303—Car repairs, bill 3014-2727, February. 1914	69 87	
48716—Ticket balance, June, 1914	15 52	
49979—Car repairs, bill 4400, June, 1914	54 30	
		$189 25

IMPERIAL OIL COMPANY, SARNIA, ONT.

44801—Headlight oil	$162 25	
44310—Car service balance, October, 1913	1 57	
44678—Gasoline, Headlight oil	108 10	
44860—Candles, fuel oil, gasoline, Headlight oil	166 19	
44932—Headlight oil	72 80	
45331—Car service balance, November, 1913	1 57	
45426—Car service balance, December, 1913	3 12	
45839—Fuel oil	290 60	
45796—Headlight oil, gasoline, fuel oil, cup grease	294 96	
46212—Loss oil, account damage to barrel, claim 7436	10 31	
46363—Car service balance, January, 1914	5 47	
46490—Overcharge in fuel oil, claim 6728, September, 1912	30 68	
46859—Headlight oil, fuel oil	288 58	
46800—Car service balance, February, 1914	6 93	
47174—Headlight oil, royalite	159 03	
44649—Cup grease, Headlight oil	362 13	
44081—Car service balance, September, 1913	3 97	
43835—Refund of balance of amount deposited on siding at M.P. 26.7—Porcupine Branch	102 83	
47229—Car service balance, March, 1914	3 15	
47755—Headlight oil, gasoline, paraffin candles	167 98	
47406—Loss oil, shipment damaged in transit, claim 7523	24 78	
47914—Headlight oil	107 14	
48204—Fuel oil	9 95	
48263—Car service balance, May, 1914	1 54	
48359—Overcharge in weight on oils, claim 8591	2 55	
49169—Headlight oil, fuel oil	171 39	
48358—Overcharge in weight and rate on oil, claim 6844	33 85	
48660—Car service balance, June, 1914	1 60	
49142—Gasoline, seal oil, fuel oil	239 12	
49695—Overcharge in weight on oil, claim 8826	1 35	
49769—Car service balance, July, 1914	3 09	
50299—Headlight oil, fuel oil	171 10	
49480—Car service balance, August, 1914	3 22	
49970—Headlight oil, fuel oil	76 64	
50112—Car service balance, September, 1914	1 54	
50262—Gasoline and oils	168 33	
50346—Headlight oil	61 09	
		$3,320 50

IMPERIAL WASTE AND METAL COMPANY, MONTREAL, QUE.

44680—Wipers	$38 57	
45841— "	38 33	
47916— "	42 83	
50264— "	35 70	
		$155 43

IRISH AND MAULSON, TORONTO, ONT.

43793—Extra premium, September 29th, 1913	$1 02	
44160—Premium on policies, Norwich-Home-Western	17,776 85	
45047—Extra premiums, Earlton and Menaki stations	13 16	
46187— " Water tanks, Connaught, So. Porcupine	9 70	
46677— " Tool houses and shelter station	6 28	
46900— " Ties, bridges, stations	358 58	
47533— " Elk Lake engine house and Earlton sta.	5 41	
48737— " Temporary station	1 23	
48946— " Station and freight shed, Iroquois Falls.	6 28	
		$18,178 51

INDIANA HARBOR BELT RAILROAD, NEW YORK, N.Y.

45947—Car repairs, bill No. 11328	$2 77	
46055— " " 12321	1 29	
46592— " " 2342	91	
48021— " " 3374	1 87	
48064— " " 4398	22 62	
49575— " " 5288	9 22	
		$38 68

INTERNATIONAL AND GREAT NORTHERN RAILROAD, PALESTINE, TEX.

44451—Car repairs, bill No. 9578, Aug. 17-18, 1913	$2 66		
44996— " " 10665, Sept. 4, 1913	1 35		
45985— " " 11513, Oct. 5-22, 1913	6 52		
46713— " " 1616, September, 1914	3 74		
46756— " " 2651, Dec.-Jan., 1913-1914	7 57		
48023— " " 3655, February, 1914	32		
48062— " " 4630, March, 1914	5 56		
49371— " " 5589, April, 1914	1 64		
49314— " " 6506, May, 1914	5 25		
49983— " " 7507, June, 1914	12 53		
49744— " " 8453, March, 1914	1 20		
		$48	34

INTERNATIONAL RAILWAY PUBLISHING CO., MONTREAL.

45045—Advertising, Canadian Ry. Guide, Nov., 1913, to Jan., 1914	$17 50		
46675— " " Feb. to April, 1914	17 50		
47644— " " May to July, 1914	17 50		
50189— " " Aug. to Oct., 1914	17 50		
		$70	00

ILLINOIS NORTHERN RAILWAY, CHICAGO, ILL.

45945—Car repairs, bill No. 18661	$1 98		
49312— " " 20152	1 76		
49981— " " 20286	54		
		$4	28

INDUSTRIAL WORKS, BAY CITY, MICH.

44862—Wire rope	$84 45		
45769—Hose	75 20		
46857—Rocker arm for crane	2 90		
49167—Wire rope	47 50		
48554—Repair parts	218 05		
		$428	10

INDIAN REFINING CO., INC., NEW YORK, N.Y.

44083—Car service balance, September, 1913	$0 77		
		$0	77

INTERNATIONAL SEAL AND LOCK CO., HASTINGS, MICH.

44661—Seals	$47 00		
45798— "	47 00		
47753— "	46 14		
47912— "	45 33		
49960— "	47 00		
		$232	47

INTERNATIONAL HARVESTER CO., CHICAGO, ILL.

44943—Loss account, shortage part disc harrow, claim No. 7420	$6 19		
		$6	19

INTERNATIONAL BOTTLING WORKS, NORTH COBALT, ONT.

43651—Loss account, damage by frost, seven half barrels beer in transit, with connections, claim No. 6543	$25 76		
		$25	76

THE IRON TRADE REVIEW, CLEVELAND, OHIO.

49165—Subscription to the *Iron Trade Review* for one year, ending August 1, 1915	$6 00		
		$6	00

THE INDEPENDENT, GRIMSBY, ONT.

50055—Advertisement, Homeseekers' Excursion	$0 75	
		$0 75

THE JACKSON PRESS, KINGSTON, ONT.

44325—Forms	$194 65	
44532— "	177 00	
45849— "	461 88	
45800— "	242 10	
46865— "	145 50	
47176—Stationery	278 35	
47757—Forms	273 02	
47918— "	40 50	
49175— "	77 65	
49144— "	353 51	
50305— "	289 09	
49972— "	32 25	
		$2,565 50

F. JOSEPH, WAH-TAY-BEG, ONT.

44831—Ties	$5 68	
		$5 68

D. F. JONES MANUFACTURING CO., LTD., GANANOQUE, ONT.

44327—Shovels	$58 92	
44546—Shovels	76 68	
45115—Jones sockets No. 2	39 72	
46299—Shovels	26 62	
46372—Shovels	29 46	
47922—Scoops	13 58	
48537—Shovels	19 96	
		$264 94

O. F. JORDAN CO., CHICAGO, ILL.

47759——Packing leathers	$32 10	
		$32 10

H. C. JONES, VANKLEEK HILL, "EASTERN ONTARIO REVIEW."

48497—Advertisement, Homeseekers' excursion	$2 50	
		$2 50

THE JACKSON PRESS, NEW LISKEARD, ONT.

50266—Printing forms	$183 50	
		$183 50

JAMES AND REID COMPANY, PERTH, ONT.

46004—Flexible ladder	$58 20	
		$58 20

C. JAMES, WAH-TAY-BEG, ONT.

46749—Ties	$361 44	
46658— "	176 95	
		$538 39

R. JARVIS, McCOOL P.O., ONT.

46638—Ties	$20 84	
47679—Lumber	265 28	
47731—Ties	10 00	
		$296 12

J. Johnston, Tomiko, Ont.

43872—Donation *re* mercury found on R. of W. summer, 1912..	$5 00	
		$5 00

Jamieson & Willows, Elk Lake, Ont.

47181—Freight charges on cabinet	$2 85	
		$2 85

Henry Johnson, Monteith, Ont.

45449—Ties	$31 26	
		$31 26

Alfred Jenson, Iroquois Falls, Ont.

45449—Ties	$59 85	
45570— "	29 65	
		$89 50

Mr. E. C. Jones, Brethour, Ont.

44945—Loss, one axe, pilfered in transit, claim 7649	$0 69	
		$0 69

J. L. Johnston, Ottawa, Ont.

45126—For S. ½ Lot 2, Con. 6, Barber, 6.06 acres	$160 00	
		$160 00

P. H. Jory, Haileybury, Ont.

45204—Loss, candy damaged in transit, claim 7977	$1 33	
		$1 33

Jenckes Machine Co., Sherbrooke, Que.

47332—Loss account, damage to pump, claim 8232	$8 00	
		$8 00

Jamieson Meat Co., Ltd., Haileybury, Ont.

43808—Loss, two tins coffee, short in transit, claim No. 7138 ..	$1 24
44321—Meat for commissary	6 75
44323— " "	9 72
44397— " "	27 59
44517— " "	13 55
44519— " "	20 55
44521— " "	52 05
44663— " "	49 19
44665— " "	76 56
44667— " "	108 86
44669— " "	117 17
44737— " "	2 00
44803— " "	115 25
44805— " "	52 81
44807— " "	69 49
44809— " "	42 75
45021—Supplies furnished car "Sir James"	9 80
44682—Meat for commissary	5 04
45845— " "	15 99
44684— " "	14 03
44820— " "	50 48
44822— " "	2 70
44864— " "	86 47
44866— " "	21 00
44868— " "	5 40

JAMIESON MEAT CO., LTD., HAILEYBURY, ONT.—*Continued.*

45179—Loss account, eggs broken in transit, claim No. 7525....	$4 51	
45276—Meat . . .	4 84	
45843—Meats for commissary	92 66	
45845— " "	15 99	
45847— " "	45 55	
45802— " "	14 51	
45804— " "	14 97	
46296—Loss, biscuits destroyed by fire, claim No. 7895-7894	95 82	
46861—Beef for commissary	5 34	
46863— " "	2 70	
47855—Meats for commissary	56 69	
47920— " "	276 92	
48276—Beef and bread	2 90	
48111—Loss, celery account damage by frost, claim No. 8239	3 30	
48361—Loss account, damage to one box butter, claim No. 7396...	13 00	
49171—Meats for commissary	219 15	
49173—Meats as per statement	13 95	
48556—Supplies furnished private car "Abitibi"	6 15	
49146—Meat for commissary	6 40	
49148— " "	197 53	
49835—Groceries	23 05	
50301—Beef	81 09	
50303— "	107 39	
49592—Overcharges and damage to meat, butter and eggs, claims 8352 8189, 8593	61 92	
49974—Beef	50 66	
49976—Meats as per statement attached to voucher	96 96	
50268— " " " " "	124 11	
50270— " " " " "	184 12	
		$2,808 72

THE JOURNAL, ST. CATHARINES, ONT.

49015—Advertisement Homeseekers' excursion	$3 00	
		$3 00

J. E. JOHNSTON, COBALT, ONT.

48360—Loss account, shortage and damage to H.H. goods in transit, claim No. 8095	$13 00	
		$13 00

M. JENSEN, ENGLEHART, ONT.

48808—Expenses, August, 1914 . .	$5 25	
50078— " October, 1914 . . .	2 75	
		$8 00

R. K. JACKSON, NEW LISKEARD, ONT.

49497—Damage to table in transit, claim No. 8676	$3 00	
		$3 00

S. ALFRED JONES, SOLICITOR, COCHRANE, ONT.

50191—Services rendered re inquest on death of Mr. Jims Jana held at Iroquois Falls, August 24th, 1914	$52 00	
		$52 00

W. S. Johnstone, Iroquois Falls, Ont.

45570—Ties	$34 97	
		$34 97

G. W. Jardine, Thornloe, Ont.

46370—For S. ½, Lat. 1, Con. 1, Armstrong, 2.5 acres	$162 00	
		$162 00

Rebecca Kennedy, North Bay, Ont.

43985—Laundry work, October, 1913	$16 77	
44084— " November, 1913	14 85	
45147— " December, 1913	13 86	
45579— " January, 1914	12 36	
45590— " February, 1914	10 41	
46709— " March, 1914	10 41	
46894— " April, 1914	10 20	
47651— " May, 1914	10 44	
47646— " June, 1914	11 01	
45822— " July, 1914	29 67	
49941— " August, 1914	15 75	
50194— " September, 1914	16 80	
		$172 53

Keystone Coal & Coke Railway, Greensbury, Pa.

46365—Car service balance, January, 1914	$0 77	
46802— " February, 1914	77	
		$1 54

George King, Earlton, Ont.

43685—Amount progress, certificate No. 1, drilling wells at Matheson, Ont., Oct., 1913	$482 98	
45013—Work performed, drilling wells, Matheson, progress certificate No. 2, final	474 14	
47613—Drilling well, No. 5, Matheson, progress certificate, final	339 99	
47564—Deepening well, No. 3, Englehart, progress certificate, final	110 46	
48385—Work performed, drilling well, Uno Park station, certificate No. 1	843 24	
		$2,250 81

D. Korman, Englehart, Ont.

45140—Refund 50% freight account, bona fide fire sufferer, claim No. 8113	$63 24	
		$63 24

Kansas City Southern Railway, Kansas City, Mo.

46758—Car repairs, bill No. 29836, Oct.-Jan., 1913-14	$9 10	
49377— " " 32763	30 34	
49316— " " 33746	1 53	
49746— " " 34862	1 93	
		$42 90

Kanawha & Michigan Ry., Columbus, Ohio.

44085—Car service balance, September, 1913	$ 90	
		$ 90

KEUFFEL & ESSER CO., MONTREAL, QUE.

44329—Drawing pens	$3 15	
47182—Reading glass	22	
50307—Thumb Tacks, T square, xylonite triangle	4 32	
49578—Draughting supplies	8 21	
50272—Erasers	4 14	
		$20 04

W. J. KELLY, SUPT. OF T. & T., NORTH BAY, ONT.

43961—Expenses, October, 1913	$12 75	
44214— " November, 1913	10 25	
44500— " December, 1913	25 30	
45525— " January, 1914	13 55	
45864— " February, 1914	33 00	
46609— " March, 1914	20 30	
47039— " April, 1914	13 35	
48641— " July, 1914	4 75	
49891— " August, 1914	15 75	
50139— " September, 1914	17 30	
50368— " October, 1914	12 70	
		$179 00

D. KERRIGAN, LANDSCAPE GARDENER, ENGLEHART, ONT.

43937—Expenses, October, 1913	$5 25	
44758— " December, 1913	4 00	
45138— " January, 1914	13 40	
45580— " February, 1914	6 01	
46607— " March, 1914	15 10	
47653— " May, 1914	5 85	
48236— " June, 1914	18 10	
48643— " July, 1914	7 30	
48810— " August, 1914	36 25	
50137— " September, 1914	3 80	
		$115 06

KENNEDY BROS., UTICA, N.Y.

44824—Inserts	$1 00	
46867—Memo pads	2 00	
47761—Inserts	3 00	
49150—Inserts, memo pads	9 00	
		$15 00

H. KRUG FURNITURE CO., LTD., BERLIN, ONT.

45851—Chair	$4 65	
49177—T. W. chair	4 65	
		$9 30

A. HAROLD E. KEEFER, DIVISIONAL ENGINEER, NORTH BAY, ONT.

45152—Expenses, 1912-1913	$24 80	
45853—Supplies for commissary	8 50	
		$33 30

KALAMAZOO RAILWAY SUPPLY CO., KALAMAZOO, MICH.

47180—Hand car parts	$13 80	
		$13 80

KING CONSTRUCTION CO., TORONTO, ONT.

44261—Pipe hangers	$4 93	
		$4 93

KNIGHT BROS. & MCKINNON, LTD., COBALT, ONT.

43707—Overcharge in weight and rate lumber, claim 8164	$230 00	
44126—Overcharge in weight lumber, claim 7210	6 30	
		$236 30

R. C. KERR, EARLTON, ONT.

45206—Refund of 50 per cent. freight on material for reconstruction of buildings destroyed by fire, June 30th, 1913	$76 29	
		$76 29

J. G. G. KERRY, TORONTO, ONT.

43763—Salary as consulting engineer, November, 1913	$83 33	
43908— " " " December, 1913	83 33	
44908— " " " January	83 33	
45830— " " " February, 1914	83 33	
45136—Services rendered in connection with the electrification of T. & N. O. Ry.	1,112 02	
46221—Salary as consulting engineer, March, 1914	83 33	
46301—Services rendered in connection with the electrification of T. & N. O. Ry.	204 85	
46682—Salary as consulting engineer, April, 1914	83 33	
46965— " " " May, 1914	83 33	
47308— " " " June, 1914	83 33	
48157— " " " July, 1914	83 33	
48310— " " " August, 1914	83 33	
49581— " " " September, 1914	83 33	
49400— " " " October, 1914	83 33	
		$2,316 83

KANSAS CITY, MEXICO & ORIENT RY., KANSAS CITY, MO.

44087—Car service balance, September, 1913	$ 90	
		$ 90

KLANER MFG. CO., DUBUQUE, TEXAS.

45808—Car heaters	$33 00	
		$33 00

F. KNAPP, IROQUOIS FALLS, ONT.

44470—Ties	$111 76	
46199— "	37 26	
		$149 02

THE KNIGHT BROS. CO., LTD., BURKS FALLS, ONT.

43709—Siding rebate, March 3rd to Aug. 18th, 1913	$54 00	
46492—Overcharge in weight and rate lumber, claim No. 8164	15 80	
		$69 80

OTTO W. KNAPP, HAILEYBURY, ONT.

43653—Loss on case Imperial whiskey, short with connections, claim No. 7080	$6 60	
43711—Loss amount two bottles liquor broken in transit	2 50	
44124—Loss amount shortage, McLaren's malt, claim No. 7040	1 25	
		$10 35

KNECHTEL FURNITURE CO., LTD., HANOVER, ONT.

44671—Chairs	$18 00	
44739—Desk	13 23	
44548—Desk	13 23	
44690—Writing table	4 75	
45806—Chairs	77 00	
46235— "	27 93	
46274—Loss account chairs destroyed by fire, Cochrane, Dec. 6th, 1913	21 30	
46869—Desk	19 00	
47178—Chair	12 50	
49179—Desk	11 50	
48582— "	30 87	
		$249 31

D. KERTZER, COCHRANE, ONT.

43810—Loss account shortage, one case cream, claim No. 7065	$3 90	
		$3 90

KENNEDY CONSTRUCTION CO., LTD.

45080—Refund account charges collected twice, claim No. 7923	$152 95	
		$152 95

R. D. KIRK, MONTEITH, ONT.

46269—Ties	$294 31	
46269— "	28 34	
46522— "	242 36	
46882— "	83 60	
46882— "	157 05	
47220— "	35 30	
		$840 96

R. A. KELSO, MONTEITH, ONT.

46882—Ties	$52 76	
		$52 76

KEYSTONE COAL & COKE CO., BUFFALO, N.Y.

47092—Coal, P. S. & N., No. 2211	$12 96	
47703—Freight on car P. S. & N. No. 2211 coal	32 25	
47386—Refund of re-consignment charge, claim No. 8604	4 56	
		$49 77

KENTUCKY & INDIANA TERMINAL RY., LOUISVILLE, KY.

48068—Car repairs, bill 4186-5195	$4 09	
		$4 09

KERR LAKE MINING CO., LTD., COBALT, ONT.

48362—Overcharge on water pipe, claim No. 7818	$60 73	
		$60 73

KANAWHA & MICHIGAN RY., COLUMBUS, ONT.

48682—Car service balance, June, 1914	$1 35	
		$1 35

A. P. KRUGER, KRUGERSDORF, ONT.

48868—Ties	$52 62	
		$52 62

D. Korman, Englehart, Ont.

50057—Supplies furnished auxiliary car, Englehart, August, 1914	$16 25	
		$16 25

M. W. Kellogg, New York, N.Y.

45594—Refund of demurrage assessed in error, claim 8536.....	$5 00	
		$5 00

Leihigh Valley Railroad, Philadelphia, Pa.

43795—Proportion of terminal expenses on immigration tickets issued at Ellis Island, April, 1913	$11 38	
44089—Car service balance, September, 1913	20 85	
44312— " " October, 1913	112 95	
44428—Proportion of commercial allowance on immigrant tickets, May, 1913	10 60	
44430—Proportion of commercial allowance on immigrant tickets, June, 1913	10 89	
45051—Proportion of commercial allowance on immigrant tickets, March, 1913	5 24	
45004—Car repairs, bill No. 72789	13 55	
45333—Car service balance, November, 1913	69 30	
45423—Ticket balance, November, 1913	22 26	
45743—Proportion of commercial allowance on immigrant tickets, issued at Ellis Island, July, 1913	3 80	
45428—Car service balance, December, 1913	140 50	
45508—Ticket balance, December, 1913	58 65	
45987—Car repairs, bill No. 74803	1 20	
46114— " " " 76777, Sept. to Nov., 1913	1 64	
46367—Car service balance, January, 1914	19 65	
46427—Ticket balance, January, 1914	7 32	
46469—Proportion of commercial allowance on immigration business, Aug., 1913	2 48	
46715—Car repairs, bill No. 78813	1 16	
46428—Proportion of commercial allowance on immigrant ticket issued at Ellis Island, Sept., 1913	3 82	
46760—Car repairs, bill No. 80779, Jan.-Feb., 1914	8 51	
46804—Car service balance, February, 1914	141 75	
46864—Ticket balance, February, 1914	25 25	
46894—Proportion of commercial allowance on immigrant tickets, issued at Phila., May, 1913	2 26	
47062—Proportion of commercial allowance on immigrant tickets, issued at Phila., Nov. 1913	5 00	
47231—Car service balance, March, 1914	71 55	
47403—Proportion of commercial allowance on immigrant tickets, issued at Ellis Island, Jan. and Feb., 1914	4 12	
48805—Car repairs, bill No. 82735	1 55	
47746—Proportion of commercial allowance on immigrant tickets, Ellis Islan, March-April, 1914	28 12	
48265—Car service balance, May, 1914	90	
49383—Car repairs, bill No. 86713	5 88	
48950—Proportion of commercial allowance on immigrant tickets, issued at New York, May, 1914	10 36	
49318—Car repairs bill, No. 88865	1 94	
49482—Car service balance, August, 1914	26 25	
49748—Car repairs, bills No. 90887-92881	18 15	
50114—Car service balance, September, 1914	22 95	
50144—Ticket balance, September, 1914	15 22	
		$907 00

Lake Shore & Michigan Southern Railroad, Cleveland, Ohio.

44453—Car repairs, bill No. 3647, August to July, 1913.....	$17 52
44130—Overcharge on wire, claim No. 6401	8 24

LAKE SHORE & MICHIGAN SOUTHERN RAILROAD, CLEVELAND, OHIO.—*Continued.*

44879—Car repairs, bill No. 4145, Feb. to Aug., 1913	$23 06	
45000— " " " 7967-69, Aug.-Sept., 1913	29 03	
45210—Loss account, damage to machinery in transit, claim No. 7775	11 08	
46057—Car repairs, bill No. 11759	27 86	
46112— " " " 15135, to Nov., 1913	8 52	
46334— " " " 12207, Nov. 20th to Dec. 11th, 1913	3 54	
46914— " " " 22539, Oct., 1913, to Jan. 21, 1914..	43 28	
48029— " " " 24829, Jan.-Feb., 1914	10 82	
47542—Ticket balance, April, 1914	25 75	
48070—Car repairs, bill No. 27959	19 51	
49385— " " " 31223	39 73	
49320— " " " 35124	30 57	
49750— " " " 36317	8 60	
		$307 11

GEORGE W. LEE, COMMISSIONER AND GENERAL AGENT, NORTH BAY, ONT.

Expenses, November 1st, 1913, to Oct. 30th, 1914	$158 55	
Salary as general agent, April 16th to Oct. 30th, 1914	1,235 00	
Honorarium as commissioner, April 16th to October 30th, 1914	458 33	
		$1,851 88

LINDSAY & MCCLUSKEY, NORTH BAY, ONT.

45540—Ice	$2,697 22	
47184—Lime	23 80	
47763— "	2 80	
49185— "	17 50	
		$2,741 32

THE LIGHTNING POLISH COMPANY, PETROLIA, ONT.

44638—Metal polish	$19 20	
44826— " "	19 20	
47924— " "	14 40	
49139— " "	14 40	
39154— " "	14 40	
50274— " "	9 60	
		$91 20

LAMBTON CREAMERY COMPANY, PETROLIA, ONT.

44675—Butter	$38 25	
44811— "	53 55	
44686— "	13 50	
46871— "	11 70	
47767— "	99 00	
47926— "	95 57	
49181— "	127 35	
49152— "	113 85	
50309— "	53 10	
49980— "	189 00	
		$794 87

THE LANCE, TORONTO, ONT.

44263—Advertisement, annual number, 1913	$15 00	
		$15 00

LADY MINTO HOSPITAL, NEW LISKEARD, ONT.

43878—Annual donation, 1913	$100 00	
		$100 00

THE LABOR NEWS, HAMILTON, ONT.

42605—Advertisement in annual edition, 1914	$25 00	
		$25 00

LOUISVILLE & NASHVILLE RAILROAD, LOUISVILLE, KENTUCKY.

44091—Car service balance, September, 1913	$6 75	
44457—Car repairs, bill No. 67989	2 80	
45002— " " " 69842	2 70	
45335—Car service balance, November, 1913	45	
45425—Ticket balance, November, 1913	2 26	
45430—Car service balance, December, 1913	38 70	
45987—Car repairs, bill No. 72174	1 38	
46116— " " " 74252, June to November, 1913	11 85	
46369—Car service balance, January, 1914	2 25	
46717—Car repairs, bill No. 76481, November, 1913	1 53	
46916— " " " 78704-5, January, 1914	16 80	
48027— " " " 80744	9 28	
48074— " " " 88821	5 20	
49305— " " " 90807	5 26	
48558— " " " 97877	19 03	
49985— " " " 99913	68 90	
		$195 14

LAKE ERIE & WESTERN.

48031—Car repairs, bill No. 64730, Nov., 1913	$3 11	
49387— " " " 66295, Dec., 1913	4 74	
		$7 85

LEHIGH AND NEW ENGLAND RAILROAD, PHILADELPHIA, PA.

44316—Car service balance, October, 1913	$2 25	
45339— " " November, 1913	3 60	
45432— " " December, 1913	2 70	
47500— " " April, 1914	7 65	
		$16 20

LAKE SIMCOE ICE SUPPLY CO., LTD., TORONTO, ONT.

43839—Ice supplied from October 1st to October 31st, 1913	$2 25	
43928— " " November 1st to November 30th, 1913	2 25	
45049— " " December 1st to 31st, 1913	2 25	
45703— " " January 1st to 31st, 1914	2 25	
45636— " " February 1st to February 28th, 1914	2 25	
46525— " " March 1st to 31st, 1914	2 25	
47002— " " April 1st to April 30th, 1914	2 25	
47768— " " May 1st to June 30th, 1914	4 50	
48739— " " July 1st to 31st, 1914	2 25	
48948— " " August 1st to 31st, 1914	2 25	
49837— " " September 1st to 30th, 1914	2 25	
49838— " " October 1st to 31st, 1914	2 25	
		$29 25

LIBRARY BUREAU OF CANADA, LIMITED, TORONTO, ONT.

45318—Folders and cards	$3 25	
46374—White cards	90	
47066—Expansion folders	7 50	
44209—Manila folders	60	
47405—Transfer cases and fastening cases in vault, May, 1914	25 20	
47770—Blue folders, white cards	3 00	
50193—White cards	90	
49658—Blue folders	1 40	
		$42 75

LEADER STATIONERY AND PRINTING C., TORONTO, ONT.

45812—Forms	$31 20	$31 20

L. J. LA HAY, CALLENDER, ONT.

49156—Groceries	$3 25	$3 25

LONDON GUARANTEE AND ACCIDENT CO., TORONTO, ONT.

45558—Premium on bond No. 80064 from January 20th, 1914, to January 20th, 1915	$96 75	$96 75

R. J. LOVELL CO., LTD., TORONTO, ONT.

45606—Order books	$28 88	$28 88

S. LOISEL, LINEMAN, SOUTH PORCUPINE, ONT.

44216—Expenses, October and November, 1913		$19 20	
44760— " December, 1913		4 70	
45499— " January, 1914		3 55	
45870— " February, 1914		5 70	
46611— " March, 1914		3 85	
46970— " April, 1914		6 90	
47481— " May, 1914		6 40	
48242— " June, 1914		9 15	
48645— " July, 1914		6 40	
48812— " August, 1914		9 20	
50143— " September, 1914		4 20	
			$79 25

A. AND D. LACASSE, CONNAUGHT, ONT.

50276—Slabs	$9 00	$9 00

TOWN OF LISKEARD, ONT.

45149—Rental of sewer, Whitewood Avenue, year 1911	$34 68	
45162— " " " 1913	34 68	
48182—Donation for services rendered by Town Fire Brigade, June 10th, 1914	50 00	
47442—Donation towards General Purpose Fund, 1913-14	200 00	
		$319 36

DR. R. C. LOWREY, ENGLEHART, ONT.

44188—Visits and treatments to Miss Laycock *re* alleged injury to foot at Krugerdorf Station	$23 00	$23 00

AGENT, T. & N. O. RY., LATCHFORD STATION.

44046—Outstanding account, shipment short, claim No. 6254	$1 05	
49531— " " shipment of apples unclaimed, claim No. 8750	35	
		$1 40

LONDON AND PETROLIA BARREL CO. LONDON, ONT.

49183—10 gal. oak kegs	$14 40	$14 40

GEORGE E. LINTON, NORTH COBALT, ONT.

49424—Loss account shortage, one can syrup, claim No. 8631...	$7 93	
		$7 93

DEXTER P. LILLIE CO., INDIAN ORCHARD, MASS.

44673—Waste	$112 77	
44870— "	112 91	
45814— "	169 34	
47186—Colored waste	169 47	
47928—Waste	113 04	
49191— "	84 60	
50313— "	84 60	
49984— "	84 56	
		$931 29

F. W. LOVE, THORNLOE, ONT.

44470—Ties	$88 47	
44470—Ties	48 00	
48609—Telegraph poles	113 50	
48868—Switch sets	16 00	
50437—Telegraph poles	70 00	
		$335 97

LOUISIANA RAILWAY AND NAVIGATION CO.

44453—Car repairs, bill No. 26001	$2 89	
45337—Car service balance, November, 1913	90	
46806—Car service balance, February, 1914	1 80	
46918—Car repairs, bill No. 27617	5 41	
		$11 00

J. LEE, COBALT, ONT.

48868—Ties	$2 76	
		$2 76

LONG ISLAND RAILROAD, PHILADELPHIA, PA.

45949—Car repairs, bill No. 21971	$9 92	
		$9 92

LOUISIANA AND NORTHWEST RY., ST. LOUIS, MO.

49379—Car repairs, bill No. 1035	$1 68	
		$1 68

LOUISIANA AND ARKANSAS RY. CO., TEXARKANA, ARK.

44093—Car servic ebalance, September, 1913	$3 60	
44881—Car repairs, bill No. 38094	48	
44318—Car service balance, October, 1913	2 25	
48072—Car repairs, bill No. 4224	1 00	
		$7 33

R. L. LAMB, RELIEVING TRAINMASTER, NORTH BAY, ONT.

44207—Expenses, October, 1913	$10 10	
47610— " June, 1914	2 45	
47612— " March and May, 1914	2 55	
48647— " July, 1914	4 80	
48814— " August, 1914	17 55	
		$37 45

LANTHIER FREERES, COBALT, ONT.

44949—Loss maple sugar, pilfered in transit	$3 00	
		$3 00

W. H. LEWIS, LOCAL MASTER OF TITLES, HAILEYBURY, ONT.

45701—Searches, January 15-28, 1914	$5 00	
45634—Searches and fees	5 34	
46527—Services rendered *re* transfer Walker to T. & N. O. Ry.	4 04	
47064—Fees, *re* station grounds	9 12	
50059—Transfer and searches furnished, July and August, 1914.	3 34	
		$26 84

ROBERT LOUGHEED, MATHESON, ONT.

46199—Ties	$150 99	
46635— "	81 85	
		$232 84

R. LOCKHART, WAH-TAY-BEG, ONT.

46522—Ties	$33 15	
46882— "	16 60	
		$49 75

E. LEONARD, LONDON, ONT.

45837—Elbow and lock	$1 45	
45810—Grates	33 00	
49982—Grate bars	39 00	
		$73 45

LA ROSE MINES, LIMITED, COBALT, ONT.

43713—Siding rebate, Princess siding, August, 1913	$11 33	
43887—Damage to furniture in transit, claim No. 6962	25 00	
44947—Overcharge in weight, silver ore, claim No. 7592	2 76	
40510—Overcharge on silver ore, claim No. 7905	297 07	
		$336 16

LAWSON AND JONES, LONDON, ONT.

47765—Stickers, "Safety First"	$2 53	
		$2 53

LAING AND MACKIE, NORTH BAY, ONT.

44677—Mattresses	$35 75	
45859—Springs, etc.	20 25	
47188—Mattresses	11 00	
47769—Blankets	42 00	
		$109 00

LUCKY CROSS MINES OF SWASTIKA, LTD., SWASTIKA, ONT.

43885—Siding rebate, April 3rd-August 6th, 1913, claim No. 7663	$36 00	
45208— " Oct., Nov., Dec., 1913, claim No. 8081	16 00	
46131—Overcharge in weight, coal, claim No. 7871	9 86	
		$61 86

FREDK. LAKE, IROQUOIS FALLS, ONT.

46269—Ties	$73 60	
46635— "	35 30	
		$108 90

F. Ludford, Iroquois Falls, Ont.

45133—Ties	$157 21	
46269— "	185 67	
46269— "	19 63	
46749— "	110 88	
46522— "	36 01	
46522— "	9 75	
46658— "	55 00	
		$574 15

Lee Manufacturing Co., Ltd., Pembroke, Ont.

43883—Loss, account one blackboard broken in transit with connections and freight charges on same, claim No. 7053	$18 78	
		$18 78

Luke Bros., Ltd., Montreal, Que.

47655—Trees, shrubs, etc.	$177 00	
		$177 00

Paul Larrivee, Widdifield, Ont.

43874—Donation *re* Mercury found on R. of W., summer, 1912..	$5 00	
		$5 00

A. L. Lye, Master Mechanics' Dept., North Bay, Ont.

44761—Expenses, November, 1913	$2 50	
45529— " December, 1913	3 75	
45866— " February, 1914	85	
50141— " July, 1914	40	
		$7 50

Edward Lansall, Bourkes, Ont.

45133—Ties	$25 53	
46269— "	26 19	
46269— "	12 75	
		$64 47

R. A. Lister & Co., Ltd., Toronto, Ont.

44128—Loss, cream separator in fire at Earlton, claim No. 7256	$55 00	
		$55 00

E. Long Manufacturing Co., Ltd., Orillia, Ont.

45095—Overcharge in weight on machinery, claim No. 6706	$98 27	
		$98 27

Frank Lefebore, North Bay, Ont.

45154—Amount deducted from June, 1909, wages account, claim No. 1995	$14 08	
		$14 08

Labor Directory, Toronto, Ont.

46189—Advertisement, January, 1914	$10 00	
		$10 00

The Long Lumber Co., Cochrane, Ont.

46995—Refund of charges paid on car lumber, claim No. 6480..	$29 19	
		$29 19

GEORGE LAYCOCK, MRS. GERTRUDE LAYCOCK AND MISS EDITH LAYCOCK, KRUGERDORF, ONT.

45005—For full release for injuries alleged to have been received by Mrs. G. Laycock and Miss E. A. Laycock at Krugerdorf December 2nd, 1913	$40 00	
		$40 00

M. LANG, WATER SERVICE INSPECTOR, ENGLEHART, ONT.

45531—Expenses, January, 1914	$8 10	
45868— " February, 1914	12 50	
46613— " March, 1914	4 55	
		$25 15

LINK BELT CO., NICETOWN, PHILADELPHIA, PA.

45855—⅝" x 3" link belt silent chain	$31 00	
		$31 00

LOUISVILLE, HENDERSON & ST. LOUIS, LOUISVILLE, KY.

45434—Car service balance, December, 1913	$4 95	
46371— " " " January, 1913	8 10	
		$13 05

A. LAFOREST, CANE, ONT.

45570—Ties	$1,746 78	
45570— "	826 95	
46199— "	370 12	
46269— "	385 15	
46577— "	262 80	
46577— "	187 45	
		$3,779 25

THE LUNKENHEIMER CO., CINCINNATI, OHIO.

47830—Valves	$3 50	
		$3 50

R. LAIDLAW LUMBER CO., TORONTO, ONT.

44550—Spruce	$223 74	
47932— "	303 65	
49187—White pine	151 67	
49158— " "	188 82	
50311—Shingles	454 36	
		$1,322 24

V. LAFONTAINE, CONNAUGHT, ONT.

48184—Ties	$8 00	
		$8 00

LABOR PUBLISHING CO., HAMILTON, ONT.

48539—Advertisement, homeseekers' excursion	$2 80	
		$2 80

LE MONITEAU, HAWKESBURY, ONT.

48857—Advertisement, homeseekers' excursion	$1 50	
		$1 50

LA SENTINELLE DE PRESCOTT, HAWKESBURY, ONT.

48859—Advertisement, homeseekers' excursion	$2 00	
		$2 00

THE LEAMINGTON POST, LEAMINGTON, ONT.

48883—Advertisement, homeseekers' excursion ..... $1 50 — $1 50

THE LAKEFIELD NEWS, LAKEFIELD, ONT.

48885—Advertisement, homeseekers' excursion ..... $1 60 — $1 60

THE LUCKNOW SENTINEL, LUCKNOW, ONT.

48891—Advertisement, homeseekers' excursion ..... $1 00 — $1 00

LE TEMPS, OTTAWA, ONT.

48947—Advertisement, homeseekers' excursion ..... $3 50 — $3 50

LAJUSTICE, LTD., OTTAWA, ONT.

48953—Advertisement, homeseekers' excursion ..... $1 50 — $1 50

F. H. LESLIE, THE GAZETTE, TAVISTOCK, ONT.

49023—Advertisement, homeseekers' excursion ..... $1 00 — $1 00

LONDON FREE PRESS, LONDON, ONT.

48894—Advertisement, homeseekers' excursion ..... $2 60 — $2 60

MRS. H. LALONDE, NORTH BAY, ONT.

49160—Bread ..... $2 12 — $2 12

J. H. LENG, HAILEYBURY, ONT.

49609—Overcharge in weight on hay, claim No. 8077 ..... $6 05
49596—Loss cigarettes, account pilferage in transit, claim No. 8831 ..... 4 00 — $10 05

LIVE OAK, PERRY & GULF R.R., LIVE OAK, FLA.

50116—Car service balance, September, 1914 ..... $3 60 — $3 60

MAIL PRINTING CO., TORONTO, ONT.

43884—Subscription, Nov. 29th, 1913, to Nov. 29th, 1914 ..... $4 00
49033—Advertisement, homeseekers' excursion ..... 12 60 — $16 60

MORGAN'S LOUISIANA & TEXAS RAILROAD & STEAMSHIP CO., NEW ORLEANS.

45997—Car repairs, bill No. 14666 ..... $5 77 — $5 77

R. L. MALKIN, NELLIE LAKE, ONT.

44831—Ties $378 42
44831— " 36 77
44831— " 72 20

R. L. Malkin, Nellie Lake, Ont.—*Continued.*

45133—Ties	$272 49	
45449— "	293 19	
45449— "	369 14	
45570— "	815 85	
45570— "	68 55	
45570— "	71 40	
45570— "	87 10	
45570— "	90 80	
46269— "	245 87	
46635— "	700 03	
46882— "	799 21	
48609— "	531 03	
49193—Slabs	13 50	
48868—Ties	219 87	
49166—Slabs	57 00	
50325—Ties	303 21	
50437— "	447 14	
50280— "	54 75	
50446— "	268 77	
50446— "	44 79	
		$6,241 08

James Morrison Brass Manufacturing Co., Toronto, Ont.

44681—Fittings	$103 39	
44872—Tap, etc.	3 17	
45865—Repairs discs, fittings	105 04	
45960—Gauges, fittings	43 50	
46873—Valves, lubricator parts	113 18	
47200—Valves, injector parts	67 58	
47775—Fittings	34 72	
47938— "	44 00	
48208—Injector parts	24 35	
49203—Fittings	32 01	
49168—Injector parts, gauges	61 80	
50315—Fittings	37 75	
49992—Sash catches	11 02	
		$681 51

John Morrow Screw Co., Ltd., Ingersoll, Ont.

45962—Set screws	$0 74	
47194— " "	1 99	
47771— " "	3 89	
48206—Cap "	3 95	
49197—Set "	1 58	
49194— " "	47	
49694—Cap "	6 09	
		$18 71

Minneapolis, St. Paul & Sault Ste. Marie Railway, Minneapolis, Minn.

44463—Car repairs, bill No. 1286, Aug., 1913	$3 05
44885—Car repairs, bill No. 491	13 96
45341—Car service balance, November, 1913	8 10
45010—Car repairs, bill No. 1904	20 43
45953—Car repairs, bill No. 479	7 48
45993—Car repairs, bill No. 1500	4 71
45630—Car repairs, bill No. 1770	3 83
46214—Overcharge in weight due rate silver ore, claim No. 6519.	38 78
46373—Car service balance, January, 1914	1 80
46723—Car repairs, bills Nos. 1163, 1435	11 45
46924—Car repairs, bill No. 1311	1 31
46997—Overcharge in weight silver ore, claim No. 7140	3 84
47089—Overcharge in weight silver ore, claims Nos. 8080, 8001..	3 81
47299—Ticket balance, March, 1914	3 31

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE RAILWAY, MINNEAPOLIS, MINN.—*Continued*

47537—Car repairs, bills Nos. 1181, 1436	$5 71	
48084—Car repairs, bills Nos. 2343 and 1537, April, 1914	13 44	
48117—Overcharge in weight and rate on silver ore, claim No. 8052	64 74	
49397—Car repairs, bills Nos. 591, 1415	12 05	
48368—Overcharge in weight on silver ore, claim No. 8522	3 26	
48432—Overcharge in weight on silver ore, claim No. 8000	4 52	
48664—Car service balance, June, 1914	22 95	
48862—Car repairs, bill No. 689	8 84	
49943—Car repairs, bills Nos. 404 and 1042	2 96	
49598—Overcharge in weight on silver ore, claims Nos. 8674, 8353, 8223, 8694	7 46	
		$271 79

MICHIE & CO., TORONTO ONT.

48743—Supplies furnished car "Sir James"	$7 51	
48954— " " " "	2 40	
50195— " " " " Sept., 1914	16 77	
50406— " " " " October, 1914	11 91	
		$38 59

WILLIAM MANN CO., PHILADELPHIA, PA.

49205—Books	$19 50	
45968—Way bill tissue books	46 00	
		$65 50

E. MADDOCK, NEW LISKEARD, ONT.

49426—Loss maple syrup account damage to containers in transit, claim No. 8521	$3 38	
		$3 38

M. W. SUPPLY CO., PHILADELPHIA, PA.

49990—Rail anchors	$96 00	
		$96 00

MICHIGAN CENTRAL RAILROAD, DETROIT, MICH.

44461—Car repairs, bill No. 11311	$2 71	
44883— " " bill No. 12818, Sept., 1913	88	
45427—Ticket balance, November, 1913	3 71	
45951—Car repairs, bill No. 13697	37 41	
46122— " " bill No. 14934	13 97	
46721— " " bill No. 1157	28 66	
46498—Overcharge in rate, claims Nos. 8057 and 8078	11 61	
46920—Car repairs, bill No. 2129	3 54	
48035— " " bill No. 3129	9 71	
48090— " " bill No. 4507	23 87	
49391— " " bill No. 5487	23 80	
49754— " " bill No. 7925	13 48	
		$173 35

MISSOURI PACIFIC RAILWAY, ST. LOUIS, MO.

44499—Car repairs, May to Sept., 1913, bills Nos. U. 46390, 46738	$90 36	
45955— " " bill No. U. 48607	3 40	
46059— " " bill No. U. 50666, Nov. 8th to 24th, 1913	1 08	
46624— " " bill No. U. 55598, Jan., 1914	13 10	
46922— " " bill No. U. 57805, Aug., 1913, to Feb. 24, 1914	5 34	
48078— " " bill No. U. 62221, Sept., 1913, to April, 1914.	43 41	
49395— " " bill No. U. 64063, Dec., 1912, to May, 1914.	24 79	
49330— " " bill No. U. 66308, June, 1914	7 18	
49752— " " bill No. U. 69374. July, 1914	18 47	
		$207 13

MEAKINS & SONS, LTD., HAMILTON, ONT.

44556—Brushes and switch brooms	$92 28	
44558—Steel combs	1 02	
45117—Brushes	7 18	
45608—Switch brooms	14 70	
45640—Brushes, etc., dusters	19 41	
46376—Brushes	19 32	
47036— "	21 52	
47127—Dusters	5 59	
47944—Brushes	48 04	
48541—Dusters and brushes	36 54	
49842—Dusters, corn whisks	6 52	
48584—Brushes, dusters, painter's knives	39 97	
49865—Brushes	34 68	
		$346 77

MINERAL SPRINGS, LTD., TORONTO, ONT.

43841—Water supplied, Oct. 4th to Oct. 30th, 1913	$3 25	
43974— " " November, 1913	3 25	
44434— " " December, 1913	4 75	
45475— " " January, 1914	3 25	
45666— " " February, 1914	3 25	
46529— " " March, 1914	4 25	
47004— " " April, 1914	2 75	
47778— " " May, 1914, to June, 1914	9 00	
49808— " " July, August, 1914	7 50	
49840— " " September, October, 1914	5 00	
		$46 25

MAGLADERY BROS. COMPANY, LTD., NEW LISKEARD, ONT.

43715—Loss, asbestos paper damaged in transit, claim No. 7124.	$1 49	
48113—Loss, account damage to stoves in transit, claim No. 7555	8 01	
48430—Loss, account damage to glass and pump, claim Nos. 7868, 8652	5 09	
		$14 59

F. J. MARTYN, NORTH BAY, ONT.

44436—Ambulance service alleged injury Nicolo Giannotte, train No. 1, Dec. 5th, 1913	$3 00	
48738—Ambulance service account alleged injuries Ernest Blais, Matheson, train No. 47, July 24th, 1914	3 00	
		$6 00

MONTREAL COTTON & WOOL WASTE CO., LTD., MONTREAL, QUE.

44679—Wool waste	$210 17	
44815— " "	191 22	
45863— " "	151 92	
45970— " "	106 13	
46881— " "	198 70	
47196— " "	218 15	
47942— " "	201 69	
49201— " "	100 05	
49162— " "	158 40	
49988— " "	92 07	
		$1,628 50

MOBILE & OHIO RAILROAD, MOBILE, ALA.

45345—Car service balance, November, 1913	$6 75	
46379— " " " January, 1914	9 45	

MOBILE & OHIO RAILROAD, MOBILE, ALA.

48039—Car repairs, bill No. 435, March, 1914		$1 96	
48080— " " " 450		2 23	
49401— " " " 410, 418		23 50	
49322— " " " 441		3 94	
49756— " " " 440		1 85	
			$49 68

MONTOUR RAILROAD, PITTSBURG, PA.

45343—Car service balance, November, 1913		$9 00	
45438— " " " December, 1913		9 90	
46377— " " " January, 1914		50 40	
46808— " " " February, 1914		64 35	
47235— " " " March, 1914		92 25	
47502— " " " April, 1914		44 55	
48088—Car repairs, bill No. 339		51	
48267—Car service balance, May, 1914		30 15	
48668— " " " June, 1914		22 95	
49773— " " " July, 1914		8 60	
			$332 66

W. H. MAUND, TRAVELLING AUDITOR, NORTH BAY, ONT.

43950—Expenses, November, 1913		$25 95	
44504— " December, 1913		42 85	
45533— " January, 1914		46 70	
45584— " February, 1914		39 55	
46569— " March, 1914		28 90	
46614— " April, 1914		20 45	
47407— " May, 1914		43 10	
47614— " June, 1914		29 60	
48649— " July, 1914		23 45	
48816— " August, 1914		77 85	
49893— " September, 1914		48 75	
49870— " October, 1914		37 55	
			$464 70

MORRIS & CO. REFRIGERATOR CO., CHICAGO, ILL.

45353—Car service balance, November, 1913		$1 60	
			$1 60

MIGHT DIRECTORIES, LTD., TORONTO, ONT.

44211—Press clippings for October, 1913		$0 24	
43930— " " " November, 1913		48	
48956— " " " August, 1914		20	
49839— " " " July, 1914		50	
50197— " " " September, 1914		35	
			$1 77

MATHESON SCHOOL BOARD, MATHESON, ONT.

45528—Donation towards school at Matheson		$200 00	
			$200 00

JOSEPH E. MILLS, WAH-TAY-BEG, ONT.

46199—Ties		$94 25	
46635— "		46 90	
			$141 15

E. C. MILLER, ENGLEHART, ONT.

50145—Expenses, September, 1914		$1 40	
			$1 40

MINES PUBLISHING CO., LTD., TORONTO, ONT.

43932—Advertisement, 1912	$18 00	
		$18 00

MASTER CAR BUILDERS' ASSOCIATION, CHICAGO, ILL.

47198—M. C. B. proceedings, 1913, part 2	$5 00	
47774—Annual dues for the year from June, 1914	7 00	
49986—Rules of Interchange, 1914	1 15	
		$13 15

MARSH AND TRUEMAN LUMBER CO., CHICAGO, ILL.

45771—Lumber, oak	$215 22	
46879—Car sills	343 26	
47773— " "	738 58	
50278— " "	207 32	
		$1,504 38

MINES CHEMICAL SUPPLY, COBALT, ONT.

48428—Loss account carboys acid broken in transit, claim No. 5382	$165 86	
		$165 86

H. F. MACDONALD, ACCOUNTANT. TORONTO, ONT.

Services rendered Commission for year ending Oct. 31, 1914	$1,970 00	
		$1,970 00

MAP SPECIALTY COMPANY, TORONTO. ONT.

44048—Map, New Ontario	$100 00	
		$100 00

A. MAILLE, EARLTON, ONT.

45449—Ties	$362 09	
45570— "	370 55	
45570— "	179 20	
46577— "	1,021 86	
46535— "	178 05	
47443— "	191 71	
49617— "	250 37	
		$2,553 83

MACKENZIE AND CO., TORONTO, ONT.

46471—Mounting and framing photos	$1 50	
		$1 50

MUSSENS LIMITED, MONTREAL, QUE.

47190—Rail braces	$237 50	
47934—Grates	16 40	
49199— "	1 90	
49660—Meals supplied inspectors and engineers, June to Sept, 1914	42 50	
49994—Wheels and axles	25 50	
		$323 80

MAINE CENTRAL RAILWAY, PORTLAND, ME.

44459—Car repairs, April to July, 1913, bill No. 7056	$13 89	
44320—Car service balance, Oct., 1913	5 75	
45006—Car repairs, bill No. 7922, Oct., 1913	42	
45436—Car service balance, December, 1913	18 15	
45991—Car repairs, Bill No. 10842	13 24	
46118— " " " 11755, May to Dec. 30, 1915	5 24	

MAINE CENTRAL RAILWAY, PORTLAND, ME.—*Continued.*

46375—Car service balance, January, 1914	$5 40	
46719—Car repairs, bill No. 448, January, 1914	2 97	
47094—Car repairs, bill No. 1181	3 78	
47233—Car service balance, March, 1914	7 40	
48666—Car service balance, June, 1914	45	
49771— " " July, 1914	1 80	
		$78 49

R. H. MITCHELL, TRAFFIC ACCOUNTANT, NORTH BAY, ONT.

48818—Expenses, August, 1914	$9 90	
		$9 90

J. MOFFATT, THORNLOE, ONT.

49540—Cedar	$111 69	
		$111 69

MONTREAL STAR PUBLISHING CO., MONTREAL, QUE.

47183—Advertisement *re* car and coach cleaner	$2 10	
		$2 10

WM. MILNE AND SON, NORTH BAY, ONT.

46496—Loss jam account damage to pails in transit, claim No. 7688	$1 81	
47857—Ties and switch sets	67 13	
47936—Ties	81 00	
50319— "	38 50	
48868— "	131 70	
		$420 14

DENIS MURPHY, COMMISSIONER, OTTAWA, ONT.

43759—Honorarium as Commissioner for quarter ending December 31st, 1913	$250 00	
44052—Expenses, January to December, 1913	146 00	
46251—Honorarium as Commissioner for quarter ending March 31st, 1914	250 00	
47294—Honorarium as Commissioner for quarter ending June 30th, 1914	250 00	
49599—Honorarium as Commissioner for quarter ending September 30th, 1914	250 00	
		$1,146 00

W. R. MAHER, LOCATING ENGINEER, NORTH BAY, ONT.

43948—Expenses, October and November, 1913	$28 70	
44094— " " " " 1913	32 95	
45156— " December, 1913, January and February, 1914	20 35	
49895— " March, April and May, 1914	69 40	
		$151 40

MONTREAL LOCOMOTIVE WORKS, LTD., MONTREAL, QUE.

45964—Locomotive parts	$37 40	
		$37 40

W. H. MINER CO., CHICAGO, ILL.

44712—Castings	$138 80	
45861—Thimbles	8 75	
45816—Miner friction gear	384 00	
47192—Car parts, castings	558 80	
47615—Thimbles	8 75	
49996—Friction gears and cylinders	612 00	
50282—Side castings	197 40	
		$1,908 50

MISSOURI, KANSAS AND TEXAS RAILWAY, ST. LOUIS, MO.

44095—Car service balance, September, 1913	$11 25	
44497—Car repairs, bill No. B117747	16 91	
44322—Car service balance, October, 1913	8 75	
45022—Car repairs, bill No. B119182	60	
45440—Car service balance, December, 1913	4 40	
46061—Car repairs, bill No. B120246	9 03	
46120—Car repairs, bill No. 121642, Dec., 1913	3 29	
46596—Car repairs, bill No. B123903-123868	16 95	
47237—Car service balance, March, 1914	5 85	
48033—Car repairs, bill No. B125328	3 48	
48092—Car repairs, bill No. B126532	12 27	
48269—Car service balance, May, 1914	1 35	
49393—Car repairs, bill No. B127531	4 30	
49324—Car repairs, bill No. B128753	35	
50118—Car service balance, September, 1914	4 05	
		$102 83

METHODIST BOOK AND PUBLISHING HOUSE., TORONTO, ONT.

43777—Printing pamphlet No. 11, The Great Clay Belt	$180 00	
43972— " report, Mining Industry, July 15, 1913	130 00	
47457— " Annual Report, year ended, October 31st, 1913	85 06	
48722— " Mining Engineer's Report	36 39	
48912— " and binding Chapter No. 38, R.S.O.	28 00	
		$459 45

H. MUELLER MFG. CO., LTD., SARNIA, ONT.

50317—Sprinkling and flushing hydrant	$29 12	
		$29 12

MORTIMER AND CO., LTD., OTTAWA, ONT.

46877—Forms	$5 04	
		$5 04

H. MARLEAU, NORTH BAY, ONT.

45617—Sand	$25 00	
44813— "	47 00	
46883— "	40 63	
		$112 63

MINNEAPOLIS AND ST. LOUIS RAILROAD, MINNEAPOLIS, MINN.

44097—Car service balance, September, 1913	$9 00	
44324— " " October, 1913	9 35	
45347— " " November, 1913	9 45	
45008—Car repairs, bill No. 72409, September 10 1913	20 98	
45442—Car service balance, December, 1913	10 80	
46594—Car repairs, bill No. 73546	42	
46810—Car service balance, February, 1914	10 35	
47239— " " March, 1914	9 45	
48076—Car repairs, bill No. 74951, January, 1914	5 70	
49389— " " 76303, February and March, 1914	17 02	
49328— " " 76261, April, 1914	3 27	
49758— " " 76866, April, June, 1914	7 25	
		$113 04

MORIN AND FRERE, COBALT, ONT.

48366—Overcharge in weight on hay, claim No. 8592	$ 54	
		$ 54

MISSISSIPPI CENTRAL RAILROAD, HATTIESBURG, PA.

44326—Car service balance, October, 1913	$ 90	
45351— " service balance, November, 1913	3 60	
46725— " repairs, bill No. 20663, January 14, 1914	1 67	
48082— " repairs, bill No. 21230, April, 1914	4 84	
49326— " repairs, bill No. 21587, June, 1914	48	
49775— " service balance, July, 1914	2 70	
		$14 19

MONETARY TIMES PRINTING CO., TORONTO, ONT.

44213—Subscription, December, 1913, to December, 1914	$3 00	
44190—Advertising, Annual Review, January, 1914	50 00	
		$53 00

PAUL MARCEAU, NORTH BAY, ONT.

44762—Expenses, November and December, 1913	$13 85	
		$13 85

A. MONTIETH, WAH-TAY-BEG, ONT.

46749—Ties	$130 54	
46522— "	64 45	
		$194 99

JAMES MURPHY, TORONTO, ONT.

44265—Subscriptions to News, Star and Telegram, October 1st, 1912 to October 1st, 1913	$7 50	
49626—Subscriptions to News, Star and Telegram to November 1st, 1914	7 50	
		$15 00

MACGILLIVRAY BROS., TORONTO, ONT.

46473—Foot desk and stools	$38 50	
47776—Base for office stool	3 75	
48462—Carbon paper	15 00	
		$57 25

THE MACLEAN PUBLISHING CO., LTD., TORONTO, ONT.

44432—Subscription for Canadian Machinery and Manufacturing News, December, 1913	$3 00	
		$3 00

MORTON PHILLIPS AND CO., MONTREAL, QUE.

44934—Code books	$8 86	
		$8 86

HUGH C. MACLEAN, LIMITED, TORONTO, ONT.

45160—Advertising in the *Contract Record*, Restaurant Privileges	$4 50	
46875—Subscription to the *Canadian Lumberman*, March 14th, 1914	2 00	
48575—Advertising in *Contract Record re* Installing Hot Water System	5 30	
48952—Advertising in *Contract Record*, Aug. 26 to Sept. 9, 1914	15 90	
		$27 70

MASSEY-HARRIS CO., LTD., TORONTO, ONT.

44008—Damage to disc harrows in transit, claim No. 7363	$1 35	
		$1 35

MACBRIDE PRESS CO., BRANTFORD, ONT.

44552—Printing forms	$21 25	
45615— "	80 13	
50284— "	161 40	
		$262 78

MACDOUGALL AND MCCLUSKY, COCHRANE, ONT.

44594—Work performed on Iroquois Falls branch, October and November, 1913	$8,297 68	
45158—Time of men helping engineers, digging up culvert pipe	88 27	
47777—Refund of deposit on Iroquois Falls branch contract, less contra account	197 13	
47779—Work performed Iroquois Falls branch, October and November, 1913	1,208 32	
47566—Work performed, months of October and November, 1913, estimate No. 5	3,530 31	
48560—Work performed, December, 1913, final estimate Cochrane Revision	10,348 53	
		$23,670 24

JAS. B. MITCHELL, GOLDLAND, ONT.

44470—Ties	$89 55	
44470— "	69 27	
44470— "	4 80	
		$163 62

MISSOURI, KANSAS AND TEXAS RAILWAY CO. OF TEXAS, ST. LOUIS, MO.

44495—Car repairs, bill No. 92417, July and August	$11 14	
44887— " " 92744, March to May, 1913	6 00	
45995— " " 93819, October, 1-28, 1913	9 06	
46124— " " 95904, December, 1913	1 65	
46626— " " 96620, October, 1912 to January, 1914	12 90	
48037— " " 97234, October and February, 1914	14 84	
48086— " " 98050, February and March, 1914	32 12	
49399— " " 489, June, 1914, 99171	50 45	
		$138 16

MEXICO NORTH WESTERN RAILWAY, EL PASO, TEX.

44328—Car service balance, October, 1913	$5 85	
		$5 85

MECHANICAL MFG. CO., LTD., CHICAGO, ILL.

49195—Bumping posts	$110 00	
		$110 00

D. MONTIETH, WAH-TAY-BEG, ONT.

46577—Ties	$180 71	
		$180 71

TOWN OF MATHESON, ONTARIO.

48418—Donation towards general purposes of municipality	$200 00	
		$200 00

MORROW AND BEATTY, TIMMINS, ONT.

44554—Car U. R. R. 4350, soft coal	$31 40	
45966—coal from M. R. R. car No. 168 and P. R. R. 880148	32 50	
46531—Cutting and repairing chisels and supplying dynamite, fuse and detonators	1 45	
47705—Labor supplied, April, 1914	1 87	
47772—Board supplied, June, 1914	40 50	
		$107 72

W. Mills, Heaslip, Ont.

45449—Ties	$87 41	
46269— "	40 35	
46522— "	98 39	
46882— "	48 20	
47731— "	170 44	
47731— "	98 05	
		$542 84

W. Marriott, Thornloe, Ont.

49538—Cedar	$114 20	
		$114 20

Geo. O. Maitland, North Bay, Ont.

45581—Repairs roofing, Roundhouse, North Bay	$1,053 30	
		$1,053 30

W. F. Moylott, Cobalt, Ont.

43655—Damage to H. H. goods in transit, claim 6383	$15 00	
		$15 00

Mollon & Schlock, Larder Lake, Ont.

43657—Claim No. 6827	$0 50	
		$0 50

Wm. Mogladery, New Liskeard, Ont.

44953—Loss account, cost cleaning stoves damaged, claim 7712½	$2 00	
43812—Loss account, one box stove, damper broken in transit with connections	45	
49499—Loss account, shortage cement bags, claim 8388	3 00	
		$5 45

Mrs. B. Merchant, Haileybury, Ont.

44951—Overcharge on shipment, H.H. goods	$2 34	
		$2 34

Frank Munro & Co., O'Brien, Que., Via Cochrane.

45212—Overcharge in weight, beans, claim 8074	$0 45	
50061—Meals supplied engineering party, Aug. 23rd to Sept. 9th, 1914	11 75	
48331—Work on concrete bridges, estimate No. 1	1,171 98	
48577—Work performed on concrete bridges, Main Line, Div. 1	1,293 43	
48870—Work performed on various bridges, August, 1914	2,861 66	
		$5,299 27

Marter United Township School Section, Marter, Ont.

47334—Rebate on material used in construction of school, claim 8438	$10 46	
		$10 46

Milnes Coal Co., Ltd., Toronto, Ont.

44955—Overcharge in weight, coal, claim No. 7168	$10 41	
		$10 41

Macdonald & Co., Cobalt, Ont.

46216—Overcharges in weight, hay, claim 7757	$4 78	
		$4 78

JAMES MEROLLA, COCHRANE, ONT.

46298—Loss, soap destroyed by fire, Cochrane, December 6th, 1913, claim No. 7890	$20 75	
47388—Loss account, shortage one case sausage in transit, claim 7690	14 00	
		$34 75

A. MEROLLA, COCHRANE, ONT.

46679—Unclaimed wages, man 11, October and November pay rolls, Nos. 160, 161	$35 91	
		$35 91

MONROE REFRIGERATOR CO., LOCKLAND, OHIO.

46494—Damage to refrigerator in transit, claim No. 6347	$50 46	
		$50 46

MONONGAHELA CONNECTING R. R., PITTSBURGH, PA.

45349—Car service balance, November, 1913	$1 75	
		$1 75

W. MILLER, WAH-TAY-BEG, ONT.

46522—Ties	$105 98	
		$105 98

JOHN R. MURRAY, TORONTO, ONT.

46664—For full release and discharge for all claims and demands, alleged injuries received, March 9th, 1914	$200 00	
		$200 00

J. S. MURRAY, MONTREAL, QUE.

47319—Floral wreath, late Wm. Wainwright, V-P. Grand Trunk Railway	$20 00	
		$20 00

J. B. MILLAR, NORTH BAY, ONT.

47535—Unclaimed wages, man No. 15, Aug. 13th, pay roll No. 125	$2 95	
		$2 95

JOHN MOYLE, QUYON, QUE.

47424—Expenses account, alleged injury, Thos. Quigg, deceased, Cobalt, April 3rd, 1914	$5 40	
		$5 40

J. E. MOYLE, QUYON, QUE.

47426—Service of hearse account, alleged injury, Thos. Quigg, deceased, Cobalt, April 3rd, 1914	$8 00	
		$8 00

MAPLE LEAF LUMBER CO., CONNAUGHT, ONT.

47436—Lumber	$305 84	
		$305 84

MOORE AUTOMATIC FIRE ESCAPE, NEW YORK, N.Y.

47946—Fire escapes	$22 50	
		$22 50

MALKIN & RYAN, CHARLTON, ONT.

48184—Ties	$205 50	
48609—Telegraph poles	294 30	
50437—Telegraph poles	150 00	
		$649 80

W. R. MONTGOMERY, NEW LISKEARD, ONT.

48115—Loss account, whiskey broken in transit, claim 8393	$1 91	
48364—Loss account, whiskey broken in transit, claim 8390-91	4 71	
		$6 62

ETHEL MOORE, TORONTO, ONT.

48217—Five days' services, July 27th to 31st	$12 50	
48308—Advance on salary, August, 1914	15 00	
		$27 50

GEO. H. MITCHELL, HANOVER POST.

48499—Advertisement, homeseekers' excursion	$2 00	
		$2 00

CHAS. MARSHALL, NORTH BAY, ONT.

48651—Expenses, July, 1914	$14 00	
		$14 00

MACKAY BROS., COBALT, ONT.

48741—Uniform suit	$26 00	
		$26 00

"THE MIDLAND ARGUS," MIDLAND, ONT.

48915—Advertisement, Homeseekers' excursion	$1 60	
		$1 60

MORTON & HERITY ("DAILY ONTARIO"), BELLEVILLE, ONT.

48811—Advertisement, Homeseekers' excursion	$6 30	
		$6 30

JOHN MURKAR ("THE PICKERING NEWS"), PICKERING, ONT.

48965—Advertisement, Homeseekers' excursion	$1 50	
		$1 50

W. H. KERR ("BRUSSELS POST"), BRUSSELS, ONT.

48813—Advertisement, Homeseekers' excursion	$1 50	
		$1 50

L. G. MORGAN ("THE MAPLE LEAF"), PORT DOVER, ONT.

48973—Advertisement, Homeseekers' excursion	$1 00	
		$1 00

"MORRISBURG HERALD," MORRISBURG, ONT.

48893—Advertisement, Homeseekers' excursion	$2 00	
		$2 00

"MOUNTAIN HERALD," SOUTH MOUNTAIN, ONT.

48999—Advertisement, Homeseekers' excursion	$2 00	
		$2 00

"The Mitchell Advocate," Mitchell, Ont.

48899—Advertisement, Homeseekers' excursion	$1 50	
		$1 50

R. L. Mortimer ("The Shelbourne Free Press"), Shelbourne, Ont.

49013—Advertisement, Homeseekers' excursion	$1 00	
		$1 00

Malcolm & MacBeth, Milverton, Ont. ("The Moncton Times and The Sun").

48901—Advertisement, Homeseekers' excursion	$6 00	
		$6 00

"The Markham Sun," Markham, Ont.

48907—Advertisement, Homeseekers' excursion	$1 00	
		$1 00

"Milbrook and Omemee Mirror," Milbrook, Ont.

48909—Advertisement, homeseekers' excursion	$3 00	
		$3 00

"The Reporter," Milbrook, Ont.

48911—Advertisement, Homeseekers' excursion	$5 50	
		$5 50

"Mount Forest Representative," Mount Forest, Ont.

48913—Advertisement, Homeseekers' excursion	$2 20	
		$2 20

J. M. McNamara, North Bay, Ont.

45023—Services rendered quarter ending December 31st, 1913	$53 15	
46533— " " " " March 31st, 1914	74 71	
47648— " " and expenses quarter ending June, 1914	17 54	
50063— " " to September 14th, 1914	15 95	
		$161 35

H. H. McGee, Travelling Auditor, North Bay, Ont.

44763—Expenses, November, 1913	$16 75	
45535— " December, 1913; Jan. to Feb. 7th, 1914	89 60	
45354— " February, 1914	48 75	
46571— " March, 1914	65 45	
46616— " April, 1914	46 75	
47483— " May, 1914	47 45	
47616— " June, 1914	29 95	
48238— " July, 1914	63 20	
48740— " August, 1914	53 15	
50149— " September, 1914	57 20	
49542— " October, 1914	28 50	
		$546 75

McIntyre Porcupine Mines, Ltd., Schumacher, Ont.

43850—Overcharge in rate on stamp shoes, claim No. 6497	$4 20	
46500—Loss, carboys and acid, claim No. 7631	14 89	
47093—Loss, account carboy acid broken in transit, claim No. 7630	8 92	
48363—Loss, rice and jam account damage in transit, claim No. 7647	3 17	
48370—Loss, account shortage steel and freight charges, claim No. 8022	3 81	
50340—Repairs to battery	1 50	
		$36 49

J. J. McNeil, Latchford, Ont.

48866—Refund of amount deposited to cover cost of repairs to siding at Latchford, Ont.	$173 03	
50327—Slabs	71 25	
		$244 28

J. McBurney and Co., North Bay, Ont.

44560—Birch	$219 10	
49209— "	128 32	
49170— "	138 16	
50288— "	25 00	
		$510 58

A. J. McGee, Secretary-Treasurer, Toronto, Ont.

—Pay rolls Toronto office, Nov. 1st, 1913, to Oct. 31st, 1914	$9,992 50	
—Expense accounts, including petty cash disbursements, Nov. 1st, 1913, to Oct. 31st, 1914	563 58	
—Remuneration for year ending Oct. 30, 1914	3,700 00	
		$14,256 08

J. A. McFarlane, North Bay, Ont.

44269—Cartage performed, October, 1913	$5 65	
50336—Cartage performed, July, 1914	10 10	
		$15 75

McCord Manufacturing Co., Detroit, Mich.

44683—Gaskets	$11 23	
45867— "	6 85	
45974— "	4 99	
47861— "	2 14	
49207— "	3 62	
50323— "	6 85	
		$35 68

Hugh C. McLean, Ltd., Toronto, Ont.

50199—Advertising, *Contract Record*, Oct. 7th, 1914	$14 00	
		$14 00

McCord & Co. (Inc.), Chicago Ill.

44716—Journal boxes	$153 00	
45869— " "	64 00	
47859— " "	90 00	
47940—Journal box lids	40 00	
50321—Journal boxes	75 00	
50286— " "	92 40	
		$514 40

McColl Bros. & Co., Toronto, Ont.

44874—Varnish soap	$29 88	
47863— " "	28 20	
49174— " "	28 92	
		$87 00

McCamus & McKelvey, Liskeard, Ont.

46300—Siding rebate, year 1913, claim No. 8314	$86 24	
		$86 24

J. H. McDonald & Co., Ltd., Cobalt, Ont.
(Formerly Strong Drug Co.)

45090—Loss account, damage and shortage empty bottles, claim No. 5527	$7 50	
		$7 50

McAuslan & Anderson, North Bay, Ont.

44215—Services *re* Kirkland telephone line	$30 00	
44267—Services and meals supplied, Nov. 11th and 13th	43 00	
45665—Services and meals *re* Watayberg and Matheson townsite	87 50	
45278—Services, board, plans and descriptions *re* Elk Lake ballast pit	41 00	
45930—Board, services and descriptions *re* Nushka and Homer..	55 80	
46475—Board, services and descriptions *re* S. ½ lot 1, con. 1, Armstrong Township	41 60	
46430—Board, plans, descriptions and services *re* Cassidy ballast pit	18 50	
47409—Plan, description and services, May 9th, 1914	32 00	
47657—Service, plan and description and expenses *re* Cobalt station grounds	19 00	
47780—Land, title, fee, plan and description, part Block N., Englehart	11 30	
48747—Plan and triplicate descriptions lot No. 338, Cobalt townsite	5 00	
48958—Board and services, August, 1914	62 25	
49022—Board and services, August, 1914	52 90	
50065—Services and plan *re* location of ditches, Wye, Sept. 19th, 1914	17 00	
49664—Services and expenses, May, 1914	124 00	
50338—Board and expenses, October, 1914	82 25	
		$723 10

McClary Manufacturing Co., Toronto, Ont.

44714—Box stoves	$50 00	
45972—Stoves	25 00	
47202—Soot door	30	
49998—Box stove	8 50	
		$83 80

E. McKenny, North Bay, Ont.

43939—Expenses, October, 1913	$22 00	
		$22 00

J. A. McConnell, Iroquois Falls, Ont.

45133—Ties	$70 62	
46749— "	124 68	
47443— "	37 80	
47443— "	65 95	
		$299 05

A. E. McGrath, Iroquois Falls, Ont.

45449—Ties	$209 04	
45449— "	173 85	
46522— "	120 22	
		$503 11

John McKenney, M. M. Dept., North Bay, Ont.

46972—Expenses, April, 1914	$5 20	
48820—Expenses, May, 1914	9 75	
		$14 95

J. P. McLaughlin, Timmins, Ont.

43816—Loss account, shortage and damage to 2 chairs, claim 6791	$1 34	
43659—Loss account, claim No. 6749	5 65	
47336—Loss account, plate glass broken in transit, claim 8125	4 90	
47408—Loss account, shortage case of eggs in transit, claim 7800	8 52	
48436—Loss half doz. bottles invalid port wine, claim 7825	2 55	
		$22 96

S. McChesney, New Liskeard, Ont.

46658—Ties.	$100 00	
48184— "	174 66	
		$274 66

Dr. A. McMurchy, North Bay, Ont.

45583—Examination of trainmen and enginemen *re* vision, color sense and hearing, November, 1913	$8 00	
		$8 00

D. McGregor, Latchford, Ont.

43889—Loss account, damage to barrel oil in transit, with connections, claim No. 7372	$4 26	
		$4 26

K. McDonald, W. S. Inspector, Englehart, Ont.

43963—Expenses, October, 1913	$9 75	
44218— " November, 1913	13 20	
44764— " December, 1913	3 90	
		$26 85

McInnis and Walsh, Porcupine, Ont.

46133—Siding rebate, year 1913, claim 8190	$26 00	
		$26 00

McEnaney Mines, Schumacher, Ont.

46302—Overcharge in rate, machinery, claim No. 6508	$5 95	
		$5 95

P. J. McCauley, Matheson, Ont.

47091—Loss, baggage under check No. 378747, stolen from station at Cochrane, claim No. 8533	$15 00	
		$15 00

McKinley-Darragh-Savage Mines of Cobalt.

43814—Cost of repairs to lathe damaged in transit, claim No. 7194	$42 00	
		$42 00

W. J. McCubbin, North Bay, Ont.

47485—Conductors' and brakemen's suits	$301 00	
48195—Uniform suit	23 50	
49172— " "	19 50	
		$344 00

Chas. S. McLean, Quyon, Que.

47428—Teams supplied, account alleged injury to Thos. Quigg, deceased, Cobalt, 1914	$9 00	
		$9 00

J. C. McNabb and Co., Cobalt, Ont.

47430—Ambulance service account, alleged injury, Thos. Quigg, funeral supplies and expenses	$99 00	
48372—Loss account, damage to wardrobe door, claim No. 8275..	3 00	
		$102 00

Alex. McClure, Inspector, North Bay, Ont.

47618—Expenses, June, 1914	$14 00	
50370— " August, 1914	12 75	
48653— " July, 1914	3 25	
		$30 00

A. A. McRoberts, Engineer's Dept., North Bay, Ont.

47620—Expenses, May and June, 1914	$13 90	
		$13 90

Donald McKinnon, Cobourg, Ont.

47948—Mats	$7 51	
		$7 51

Gordon C. McLaughlin & Co., Toronto, Ont.

48213—One Protectograph cheque writer, 282840	$40 00	
		$40 00

Laura McKee, Elk Lake, Ont.

48745—Rental of telephone lines from Salmon's Mill to 3½ miles west of Elk Lake, year ending February 1st, 1915....	$5 00	
		$5 00

T. F. McMahon, "The Liberal," Richmond Hill.

48993—Advertisement, Homeseekers' Excursion	$1 00	$1 00

McLean Bros., Seaforth, "Huron Expositor."

49009—Advertisement, Homeseekers' Excursion	$1 00	
		$1 00

W. H. McGruther, Widdifield, Ont.

48586—Hardwood	$9 00	
		$9 00

McGregor-Banwell Fence Co., Walkerville, Ont.

49501—Overcharge in freight on car posts, claim No. 8420.....	$31 50	
		$31 50

C. M. McCarthy, Elk Lake, Ont.

49503—Loss account, damage to church benches in transit, claim 8708	$13 00	
		$13 00

McCaffery and McQuigge, Toronto, Ont.

49577—Tent supplied, drift bolts, labor changing rails, Montreal River Bridge	$321 25	
		$321 25

McKENZIE, MANN & CO., LTD., TORONTO, ONT.

49579—Overcharge in freight on ties, claim No. 8357..... $33 96 — $33 96

McKNIGHT AND JONES, COCHRANE, ONT.

49697—Siding rebate, Nov., 1911, to May 25th, 1914, at M.P. 120, claim No. 8833 ..... $150 00 — $150 00

J. J.McLELLAN, COBALT, ONT.

49867—Lumber . . . . $218 67 — $218 67

DUNCAN McARTHUR, "RUSSELL LEADER," RUSSELL, ONT.

50067—Advertisement, Homeseekers' Excursion ..... $2 00 — $2 00

H. H. McLEAN, UNO PARK, ONT.

50147—Expenses, May to September, 1914 ..... $2 05 — $2 05

S. McIVOR, B. AND B. DEPT., NORTH BAY, ONT.

49662—Expenses, September (21st to 23rd), 1914..... $2 00 — $2 00

NORTH AMERICAN BENT CHAIR COMPANY, LTD., OWEN SOUND, ONT.

44876—Chairs $8 40
44865— " 8 40
49213— " 8 40
49178— " . . . . . 8 40 — $33 60

NATIONAL RAILWAYS OF MEXICO, CITY OF MEXICO, MEXICO.

45371—Car service balance, November, 1913 . . .. $4 50
45458— " " December, 1913 . . .. 5 40 — $9 90

NIPISSING LAUNDRY COMPANY, NORTH BAY, ONT.

43987—Laundry for private car "Sir James," Oct., 1913 ..... $6 32
44219— " Cobalt station, July-Aug. and Sept., 1913 .. 3 21
44221— " Washing blankets, October, 1913 ..... 4 00
44192—Laundry work, general offices, North Bay, Oct. and Nov. 3 33
45025— " private car "Sir James" 3 88
45585— " performed for car "Abitibi" 2 27
45667— " " " 6 81
45334— " " Cobalt station, Oct. to Dec., 1913 2 56
45934— " " general office building, Jan., '14 2 27
46432— " " general office, North Bay, Mar., 1914 . . . . 1 56
47321— " " general office and blankets washed, April, 1914 . ..... 7 14
47788— " " general office, North Bay, Feb., 1914 . . . . 1 02
47950— " " washing blankets 19 50
48749— " " for car "Abitibi" 1 51
48765— " " for superintendent's office 1 23

NIPISSING LAUNDRY COMPANY, NORTH BAY, ONT.—*Continued.*

48966—Laundry work performed, general office building and car "Abitibi," July, 1914		$4 31	
50069— " " supt.'s office, Aug., 1914		1 08	
50201— " " Cobalt station, Jan. to July, 1914		7 44	
50198— " " supt.'s office, Sept., 1914		81	
50412— " " general offices and car "Sir James," Oct., 1914		6 60	
			$86 85

NIPISSING FOUNDRY & MACHINE COMPANY, LTD., NORTH BAY, ONT.

44689—Castings	$13 98	
44819— "	16 02	
		$30 00

AGENT T. & N.O. RY. NORTH BAY, ONT.

44157—Overcharge in weight, lumber, claim No. 7539	$9 80	
44159—Outstanding account, shipt. forwarded to lock up, claim No. 7566	1 11	
46252—Outstanding account, ice supplied car at North Bay	7 50	
46254—Overcharge in rate, high explosives, claim No. 5962	5 20	
47017—Overcharge in rate, weight on potatoes, claim No. 7247	3 86	
48970—Tickets supplied, re alleged accident to T. L. Smith, Jan. 21st, 1914	57 75	
		$85 22

NORTHERN PACIFIC RAILWAY, ST. PAUL, MINN.

44509—Car repairs, bill No. 13032, Aug., 1913	$0 33	
45032— " " 14683, Sept. 10, 1913	64	
46134— " " 17471, Nov. 12-20, 1913	94	
46729— " " 1036, Dec. 24, 1913	96	
46812—Car service balance, February, 1914	10 55	
48055—Car repairs, bill No. R.R. 4060	3 47	
48098— " " R.R. 5366	4 21	
48313—Ticket balance, May, 1914	22 26	
49336—Car repairs, bill No. 8301	8 52	
49995— " " 9716	4 63	
49764— " " 11097	1 15	
		$57 66

NORTHERN ELECTRIC CO., LTD., NORTH BAY, ONT.

44331—Phone supplies	$207 30	
44687—Scales, batteries, condenser	98 33	
45151—Electrical material	142 21	
44828— "	136 80	
45445— "	286 83	
45871—Reflectors, phone sets, dry batteries	560 47	
45978—Cords, line poles, phone supplies, etc.	96 35	
46751—Copper joints, phone material, dry batteries	36 47	
47204—Tool bag, electrical supplies	8 54	
47873—Telephone parts, copper wire	353 67	
47952—Batteries linen	55 68	
48210—Telephones and receivers	28 22	
49223—Phone material compound and electrical material	292 72	
49176—Batteries, phone material, springs	106 89	
50329—Phone material	91 30	
50002—Electrical material	778 65	
50292— "	58 99	
		$3,339 42

A. O. Norton, Inc., Coaticook, Que.

45873—Repair parts for jacks	$19 75	
45982— " "	40 40	
49219— " "	14 40	
		$74 55

New York, New Haven and Hartford Railroad, New Haven, Conn.

44101—Car service balance, September, 1913	$68 40	
44507—Car repairs, August 26th	3 75	
44336—Car service balance, October, 1913	72 00	
45363—Car service balance, November, 1913	67 50	
45026—Car repairs, bill No. 68585, March to Sept., 1913	1 74	
45216—Overcharge in rate, zinc dust, claim No. 7771	14 40	
45452—Car service balance, December, 1913	61 50	
46065—Car repairs, bill No. 68024, June 20, 1913	2 20	
46128—Car repairs, bill No. 73267, November, 1913	42	
46387—Car service balance, January, 1914	15 60	
46727—Car repairs, bill No. 73056, December, 1913	42	
46816—Car service balance, February, 1914	30 15	
47247— " " March, 1914	17 10	
47508— " " April, 1914	11 70	
48275— " " May, 1914	10 35	
48672— " " June, 1914	3 60	
49777— " " July, 1914	90	
49813—Ticket balance, July, 1914	3 10	
49989—Car repairs, bill No. 86806	1 07	
49488—Car service balance, August, 1914	30 95	
		$416 85

New York Central and Hudson River Railroad, New York, N.Y.

44314—Car service balance, October, 1913	$151 90	
44482—Car repairs, bill No. 39825-39831	11 59	
45435—Car service balance, November, 1913	345 90	
45332—Coal and charcoal furnished private car "Sir James," November 28, 1913	59	
45518—Car service balance as per statement, December, 1913	215 50	
46063—Car repairs, bill 42867, July 29, 1913, to Nov. 7, 1913	25 71	
46130—Car repairs, bill 46840, 2246, July, 1913, to Jan., 1914	22 44	
46683—Car service balance, January, 1914	34 60	
46628—Car repairs, bill No. 5446	27 61	
46866—Ticket balance, February, 1914	32 75	
46876—Car service balance, February, 1914	23 10	
47097—Outstanding account, uncollected freight charges on copper ore, claim No. 4678	408 14	
47241—Car service balance, March, 1914	95 65	
47301—Ticket balance, March, 1914	42 24	
48057—Car repairs, bill No. 8951, Nov., 1913, Feb.-March, 1914	48 50	
47746—Car service balance, April, 1914	153 85	
48094—Car repairs, bill No. 11531, April-March, 1914	32 02	
49413—Car repairs, bill 14606-18101, May and June, 1914	119 31	
49819—Car service balance, July, 1914	3 60	
49768—Car service balance, No. 24914, August, 1914	22 94	
48321—Car service balance	14 85	
49945—Car repairs, bill No. 21598	23 12	
		$1,855 91

Nashville, Chattanooga and St. Louis Railway, Nashville, Tenn.

44342—Car service balance, October, 1913	$7 20	
45365— " " October and November, 1913	5 85	
45014—Car repairs, bill 83071, Sept. 3, 26, 1913	8 46	
45454—Car service balance, December, 1913	14 85	
46389— " " January, 1914	10 80	
46822— " " February, 1914	2 70	

NASHVILLE, CHATTANOOGA AND ST. LOUIS RAILWAY, NASHVILLE, TENN.—*Continued.*

46926—Car reapirs, bill No. 85478, October, 1913	$4 78	
48102— " " 86686, Nov.-Feb.-March, 1914	2 97	
49760— " " 89255	6 89	
50122—Car service balance, September, 1914	3 15	
		$67 65

NORFOLK AND WESTERN RAILWAY, ROANOKE, VA.

44099—Car service balance, September, 1913	$13 50	
44334— " " October, 1913	57 60	
45361— " " November, 1913	31 50	
45450— " " December, 1913	77 40	
45510—Ticket balance, December, 1913	36 40	
46001—Car repairs, bill S.M.P. 196-328	48	
46126— " " 197-130, Oct.-Nov., 1913	8 35	
46385—Car service balance, January, 1914	100 80	
46634—Car repairs, bill S.M.P. 200-108, January, 1914	18 26	
46636— " " 199-282, June-August, 1914	9 16	
46814—Car service balance, February, 1914	99 45	
47245—.	110 25	
48041—Car repairs, S.M.P. 200-212, February, 1914	3 61	
47506—Car service balance, April, 1914	149 40	
48100—Car repairs, bill S.M.P. 202-233	23 06	
48273—Car service balance, May, 1914	90 90	
49381—Car repairs, bill 203-44	7 93	
48670—Car service balance, June, 1914	7 20	
49332—Car repairs, bill S.M.P. 203, 362	11 33	
49486—Car service balance, August, 1914	27 45	
49762—Car repairs, bill S.M.P. 205-156	10 33	
50120—Car service balance, Sept., 1914	74 70	
		$969 06

MUNICIPALITY OF THE TOWN OF NORTH BAY, NORTH BAY, ONT.

44217—Water supplied, October, 1913	$288 40	
44438— " November, 1913	288 40	
45592— " December, 1913	476 07	
45938— " February, 1913	260 96	
46434—Water rates, quarters ending March, 1914-June, 1914	22 50	
46436—Water supplied, March, 1914	214 13	
47343—Water supplied, April, 1914	222 81	
47659—6 in. valve to replace one covered up, siding on Gore St.—	9 75	
47650—Water supplied, May, 1914	214 62	
48280—Water supplied, June, 1914	196 07	
48742—Water rates for quarter ending Sept. 30th, 1914	12 75	
48744—Water supplied, month of July, 1914	222 74	
50081— " " August, 1914	225 82	
50413— " General offices, quarter ending December 31, 1914	12 75	
49666— " month of September, 1914	217 14	
		$2,884 91

NEW YORK, CHICAGO AND ST. LOUIS RAILROAD, CLEVELAND, OHIO.

44505—Car repairs, bill A17	$2 57	
44332—Car service balance, October, 1913	9 45	
45357— " " November, 1913	17 55	
45028—Car repairs, bill A18	99	
45446—Car service balance, December, 1913	1 35	
46132—Car repairs, bill A19, November 16, 1913	2 27	
46383—Car service balance, January, 1914	17 55	
46630—Car repairs, bill A20, December, 1913	5 30	
47053— " A21, January-February, 1914	4 34	
49403— " A22, March-April, 1914	10 95	
49484—Car service balance, August, 1914	7 80	
49766—Car repairs, bill A23-A24	8 69	
		$88 81

NEW LISKEARD WATER COMMISSION, NEW LISKEARD, ONT.

44086—Water supplied, May 16th to November 16th, 1913.....	$225 00		
47341— " November 16th to April 1st, 1914.....	202 50		
48278— " April 1st to May 22nd, 1914.....	76 88		
			$504 38

NORTHERN CUSTOM CONCENTRATOR COMPANY, COBALT, ONT.

43661—Damage to Vanner roller in transit, claim No. 6926	$9 20	
		$9 20

NORTH BAY TIMES, NORTH BAY, ONT.

43968—Advertising sale of lots	$7 20	
47345—Subscription, December, 1913, to December, 1914	1 00	
		$8 20

S. NORFOLK, HAILEYBURY, ONT.

43663—Loss, one pin casting short in transit, claim No. 6851	$0 60	
48751—Beaver board, light glass	2 10	
		$2 70

NEW YORK, ONTARIO AND WESTERN RY., NEW YORK, N.Y.

44103—Car service balance, September, 1913	$15 30	
44338— " " October, 1913	20 25	
45103— " " November, 1913	12 15	
46818— " " February, 1914	9 90	
47249— " " March, 1914	3 60	
48043—Car repairs, bill No. 3-456	1 55	
49409— " " 5-458	3 29	
49334— " " 6-424	12 40	
49490—Car service balance, August, 1914	3 15	
		$81 59

NATIONAL TRANSCONTINENTAL RAILWAY, OTTAWA, ONT.

44975—Overcharge in rate, machinery, claim No. 7811	$13 74	
		$13 74

NATIONAL DRUG & CHEMICAL CO. OF CANADA, TORONTO, ONT.

44685—Chemicals	$10 80	
44817—Caustic soda	3 50	
45881—Sal. soda, sponges, etc.	20 00	
45976—Chemicals, acid, chloride of lime	16 81	
46885—Chemicals	18 57	
47206— "	8 90	
47875—Chamois. drugs	10 69	
47960—Chemicals	22 95	
49215— "	1 30	
49180— "	14 60	
50331— "	13 00	
50000—Caustic soda	5 00	
		$146 12

NIAGARA FRONTIER SUMMER RATE COMMISSION, MONTREAL, QUE.

43976—Proportion of Niagara Frontier Summer rate Committee Compiling and issuing tariffs, season 1913	$23 20	
		$23 20

NATIONAL LIFE ASSURANCE CO., TORONTO, ONT.

43765—Rent of offices with room & vault in basement,	Nov., 1913	$293 75	
43912— " " "	Dec., 1913	293 75	
44911— " " "	Jan., 1914	293 75	
45834— " " "	Feb., 1914	293 75	
46223— " " "	Mar., 1914	293 75	
46686— " " "	Apl., 1914	293 75	
46969— " " "	May, 1914	293 75	
47312— " " "	June, 1914	293 75	
48161— " " "	July, 1914	293 75	
48314— " " "	Aug., 1914	293 75	
49585— " " "	Sep., 1914	293 75	
49402— " " "	Oct., 1914	293 75	
			$3,525 00

NIPISSING MINING CO., LTD., COBALT, ONT.

43663—Overcharge in weight, silver ore in transit, claim No. 6851	$73 62	
46218—Loss, acid and carboys, account, damage in transit, claim No. 7536	9 45	
47095—Loss account, one carboy muriatic acid broken, claim No. 8358	4 67	
48374—Loss account, shortage, packing machinery in transit, claim No. 7951	43 50	
49699—Overcharge in rate on silver ore, claim No. 8804	81 27	
49380—Loss account, one pulley broken in transit, claim No. 8015	68 20	
		$280 71

NEW ENGLAND PASSENGER ASSOCIATION, BOSTON, MASS.

46685—Proportion of New England and Eastern Summer Rate Committee proceedings, No. 15, 1914	$10 00	
		$10 00

NEW ORLEANS GREAT NORTHERN RAILROAD, BOGALUSA, LA.

44330—Car service balance,	October, 1913	$1 35
45355— " "	November, 1913	8 10
45444— " "	December, 1913	1 80
46381— " "	January, 1914	3 60
48059—Car repairs, bill No. 274,	December, 1913	23 65
48096— " "	129, December, 1913	24 61
49407— " "	E266, May, 1914	7 12
		$70 23

NEW YORK, SUSQUEHANNA & WESTERN RAILROAD, NEW YORK, N.Y.

45359—Car service balance,	November, 1913	$4 05
45448— " "	December, 1913	1 80
47504— " "	April, 1914	12 15
47243— " "	March, 1914	1 80
		$19 80

NORFOLK & SOUTHERN RAILWAY, NORFOLK, VA.

44340—Car service balance,	October, 1913	$4 50
49991—Car repairs, bill No. 7298		46
		$4 96

NEW ORLEANS, MOBILE & CHICAGO R.R. CO., MOBILE, ALA.

44501—Car repairs, bill No. 11945		$21 70
45369—Car service balance,	November, 1913	2 70
47024—Car repairs, bill No. 12287		3 12

NEW ORLEANS, MOBILE & CHICAGO R.R. CO., MOBILE, ALA.—*Continued.*

45456—Car service balance, December, 1913	$1 80	
46632—Car repairs, bill No. 13098-2274, Sept. 30th-Oct.	11 18	
48045— " " R-763	6 25	
48674—Car service balance, June, 1914	3 60	
		$50 35

NICHOLSON FILE CO., PORT HOPE, ONT.

44333—Files	$16 38	
45542— "	39 73	
46477— "	32 98	
47867— "	6 16	
48588— "	2 44	
49869— "	22 84	
		$120 53

NORTHERN LUMBER MILLS, LTD., NORTH COBALT, ONT.

46222—Siding rebate, July 1st to Dec. 31st, 1913	$116 00	
43820—Siding rebate, January to June 30th, 1913, claim No. 7637	44 00	
		$160 00

ROBERT NEILY, THORNLOE, ONT.

44233—Telegraph poles	$116 00	
44233— "	8 75	
		$124 75

NATIONAL RAILWAY PUBLICATION CO., NEW YORK, N.Y.

45646—Subscription to quarterly supplement of the Official Guide	$0 50	
45932—Representation in the Official Guide for six months	30 00	
46438—Subscription, the Official Guide, May to April 15th, Inc., 1914	7 80	
47652—Subscription, the Official Guide, Aug. 1914, to July, 1915	7 80	
48968—Representation in official guide to January, 1915	30 00	
		$76 10

L. H. NEIL, NEW LISKEARD, ONT.

46220—Loss ½ gal. methylated spirits accounts, damage to can in transit, claim No. 7912	$2 90	
		$2 90

NATIONAL MALLEABLE CASTINGS CO., CLEVELAND, OHIO.

47208—Door fasteners	$3 50	
47869— " "	3 50	
		$7 00

AGENT T. & N. O. RY., NEW LISKEARD STATION, ONT.

44161—Outstanding account, shipment refused, claim No. 7554	$5 35	
43868—Outstanding account, shipment short with connections, claim No. 7665	87	
44440—Supplies furnished private car "Sir James"	2 15	
45183—Outstanding account, shipment short, claim No. 7075	1 07	
46167—Outstanding account, shortage heater, claim No. 8174	15 00	
47216—Tamarack wood	20 25	
47356—Outstanding account, error on part C.P.R., claim 8404	6 00	
48137—Outstanding account, duplicate billing, claim 8492	25 08	
48402—Outstanding account, shipment short, claim 8340	1 97	
49533—Loss account, coal missing from car, claim 8406	11 22	

AGENT T. & N. O. RY., NEW LISKEARD STATION, ONT.—*Continued.*

49535—Car refused by original consignee owing to coal having been pilfered in transit, claim 8406	$19 00	
50430—Supplies for private car "Sir James" (October Commission trip)	2 96	
		$110 92

NEW ORLEANS & NORTH EASTERN RAILROAD, NEW ORLANS, LA.

44503—Car repairs, bill No. 40256	$10 01	
46820—Car service balance, February, 1914	2 70	
49405—Car repairs, bill No. 45344	5 50	
49338— " " bill No. 45785	11 90	
49993— " " bill No. 46360	1 77	
48049— " " bill No. 44582	1 72	
		$33 60

NATIONAL BRASS, LIMITED, LONDON, ONT.

45875—Fittings	$45 31	
		$45 31

NORTHERN CANADA SUPPLY CO., COBALT, ONT.

43891—Loss account, shortage with connections	$2 20	
43893—Loss account, damage to drop hanger, express and duty, claim 7050	3 70	
43895—Loss account, one pulley broken in transit with connections, claim 7216	4 60	
43818—Loss account, one water closet broken in transit, claim 7400	4 35	
44957—Loss account, shortage galv. tubs and fit., claim 7478	4 84	
45187—Overcharge in rate on paper, claim 7217	48 96	
45214—Siding rebate, Timmins siding, September to November, 1913, claim 8092	26 00	
46135—Loss account, shortage one closet in transit	7 37	
46631—Refund of deposit *re* construction siding, Timmins	63 17	
46502—Overcharge in weight carbide, claim 8066	11 44	
46999—Loss account, shortage steel and shovels, claims 7564-7712	12 92	
47099—Siding rebate, Timmins siding, March, 1914	10 00	
47871—Foot valve	2 92	
47390—Loss account, shortage one bundle shovels in transit, claim 8171	4 05	
48365—Siding rebate, April and May, 1914, claim 8685	16 00	
49507—Siding rebate, June, 1914, claim 8828	14 00	
49428—Loss turpentine and stain, account damage to containers	8 60	
49574—Refund freight on scale broken in transit, claim 7399	98	
49600—Siding rebate, July and August, 1914 claim 9101	20 00	
		$266 10

NORTHERN CENTRAL RY., BALTIMORE, MD.

45030—Car repairs, bill 1816	$3 59	
46136— " " bill 136-2508	2 40	
48047— " " bill 156-3718	48	
		$6 47

J. C. NELSON, HEASLIP, ONT.

46522—Ties	$73 34	
46882— "	35 20	
		$108 54

NORTHERN NAVIGATION CO., LTD., SARNIA, ONT.

48376—Loss account, shortage ten bags shorts, claim 6896	$5 85	
50180—Ticket balance, September, 1914	09	
		$5 94

NEW ORLEANS, TEXAS & MEXICO RAILROAD, BEAUMONT, TEX.

45367—Car service balance, November, 1913	$8 10	
45012—Car repairs, bill No. 1250,. October 17th, 1913	89	
46731— " " bill 2425, Oct. 17th, 1913	3 86	
46824—Car service balance, February, 1914	6 30	
47487—Car repairs, bill 3079	11 82	
49411— " " bill 5236	5 89	
49987— " " bill 5593	1 25	
		$38 11

NIPISSING CENTRAL RY., TORONTO, ONT.

45280—Construction and grading of roadway crossing at Argentite	$238 46	
45877—Ties, brick, turnouts	1,941 04	
44718—Timber and girder, bill No. 58	1,265 00	
47063—For advance	25,000 00	
47958—Rails, A bars, ties	7,607 71	
48962—Labor, planking for circus, bill No. 88	3 87	
49182—Frogs	901 50	
49558—Advance to N.C.R. for settlement of outstanding accounts collectable against them, covered by N.C.R. vouchers as per statement	80,871 00	
49560—For advance	25,000 00	
		$142,828 58

NEW ORLEANS TERMINAL CO., NEW ORLEANS, LA.

45999—Car repairs, bill 10078	$1 95	
46928— " " bill 11269	4 79	
48051— " " bill 11662	2 78	
		$9 52

NORTHERN ONTARIO LIGHT & POWER CO., TIMMINS, ONT.

43993—Electric current supplied, October, 1913	$17 22	
44271— " " " October, 1913	13 61	
44365— " " " October, 1913	16 74	
45717— " " " November, 1913	53 23	
45326— " " " December, 1913, January, 1914	48 10	
45644— " " " January, 1914	25 14	
45944— " " " February, 1914	22 33	
46549— " " " February, 1914	25 38	
46456— " " " March, 1914	33 95	
47337— " " " April, 1914	17 22	
47715— " " " May, 1914	13 37	
47786— " " " May, 1914	10 34	
48294— " " " June, 1914	8 89	
48763— " " " July, 1914	15 15	
48982— " " " July, 1914	4 02	
50077— " " " August, 1914	6 02	
50425— " " " November, 1914	23 38	
49672— " " " September, 1914	27 72	
		$381 81

NORTHERN ONTARIO LIGHT & POWER CO., NEW LISKEARD, ONT.

44001—Electric current supplied, October, 1913	$14 57	
44088— " " " November, 1913	7 25	
44196— " " " November, 1913	18 73	
45027— " " " December, 1913	8 15	
45055— " " " May 29, 1913, to June 28, 1913	5 93	
45477— " " " Dec. 30, to Feb. 2, 1914	6 05	
45709— " " " December, 1913	18 41	
45642— " " " January, 1914	17 69	
45548— " " " February, 1914	4 75	
45942— " " " February, 1914	10 57	

NORTHERN ONTARIO LIGHT & POWER CO., NEW LISKEARD, ONT.—*Continued.*

46541—Electric current supplied,	March, 1914	$4 75	
46448— " " "	March, 1914	7 53	
47329— " " "	April, 1914	10 98	
47717— " " "	May, 1914	8 66	
48286— " " "	June, 1914	8 74	
41757— " " "	June 26 to July 24, 1914	4 65	
48492— " " "	July and August, 1914	5 78	
49841— " " "	September, 1914	4 01	
49668— " " "	August, 1914	7 21	
49810— " " "	October, 1914	4 25	
			$178 66

NORTHERN ONTARIO LIGHT & POWER CO., SOUTH PORCUPINE, ONT.

43995—Electric current supplied,	October, 1913	$17 05	
44194— " " "	November, 1913	20 01	
45713— " " "	December, 1913	23 93	
45322— " " "	January, 1914	20 25	
46545— " " "	February, 1914	17 21	
46452— " " "	March, 1914	12 97	
47335— " " "	April, 1914	14 57	
48290— " " "	June, 1914	12 25	
48761— " " "	July, 1914	9 05	
50075— " " "	August, 1914	10 57	
50423— " " "	September, 1914	12 97	
50422— " " "	October, 1914	17 61	
			$188 44

NORTHERN ONTARIO LIGHT & POWER CO., SCHUMACHER, ONT.

43999—Electric current supplied,	October, 1913	$9 70	
44198— " " "	November, 1913	11 38	
45719— " " "	December, 1913	13 94	
45328— " " "	January, 1914	13 78	
46547— " " "	February, 1914	11 30	
46454— " " "	March, 1914	9 70	
47333— " " "	April, 1914	11 38	
47711— " " "	May, 1914	8 58	
48292— " " "	June, 1914	9 46	
48980— " " "	July, 1914	5 06	
49670— " " "	August, 1914	17 56	
50418— " " "	September, 1914	20 34	
50424— " " "	October, 1914	12 42	
50426— " " "	October, 1914	30 19	
			$184 79

NORTHERN ONTARIO LIGHT & POWER CO., HAILEYBURY, ONT.

44003—Electric current supplied,	October, 1913	$5 95	
44200— " " "	November, 1913	9 31	
45707— " " "	December, 1913	9 39	
45320— " " "	January, 1914	7 47	
45940— " " "	February, 1914	5 31	
46446— " " "	March, 1914	4 83	
47325— " " "	April, 1914	3 39	
48976 " " "	May and August, 1914	6 91	
50419— " " "	September, 1914	4 91	
50416— " " "	October, 1914	5 47	
			$62 94

NORTHERN ONTARIO LIGHT & POWER CO., KEW LAKE, ONT.

44367—Electric current supplied,	October, 1913	$1 67	
44202— " " "	November, 1911	2 49	
45705— " " "	December, 1913	2 81	

NORTHERN ONTARIO LIGHT & POWER CO., KEW LAKE, ONT.—*Continued.*

45286—Electric current supplied, January, 1914		$2 41	
46539— " " " February, 1914		1 77	
46442— " " " March, 1914		2 01	
47327— " " " April, 1914		1 61	
47709— " " " May, 1914		1 29	
48755— " " " June, 1914		1 29	
48974— " " " July, 1914		1 25	
			$18 60

NORTHERN ONTARIO LIGHT & POWER CO., PORCUPINE, ONT.

43997—Electric current supplied, October, 1913		$8 97	
44442— " " " August and November, 1913.		17 06	
45715— " " " December, 1913		12 73	
45324— " " " January, 1914		10 17	
46543— " " " February, 1914		9 37	
46450— " " " March, 1914		6 81	
47331— " " " April, 1914		5 53	
47713— " " " May, 1914		4 73	
47784— " " " May, 1914		11 37	
48288— " " " June, 1914		3 45	
48759— " " " July, 1914		6 33	
48978— " " " August, 1914		6 97	
50124— " " " September, 1914		9 05	
50120— " " " October, 1914		9 29	
			$121 83

NORTHERN ONTARIO LIGHT & POWER CO., NORTH COBALT, ONT.

44007—Electric current, North Cobalt station, Sept. 25th to Oct. 25th, 1913	$4 01	
45284—Electric current, North Cobalt station, Oct. to Dec. 1913	9 22	
46537—Electric current, North Cobalt station, Jan. to Feb. 21st, 1914	6 26	
46144—Electric current, North Cobalt station, Feb. 21st to March 25th, 1914	2 49	
47411—Electric current, North Cobalt station, March 25th to April 22nd, 1914	1 45	
47413—Electric current, North Cobalt station, to May 23rd, 1914	13 61	
48284—Electric current, North Cobalt station, May 23rd to June 23rd, 1914	1 29	
50417—Electric current, North Cobalt station, June 23rd to Sept. 3rd, 1914	5 55	
		$43 88

NORTHERN ONTARIO LIGHT & POWER CO., COBALT, ONT.

44005—Electric current, October, 1913	$40 43	
44010—Refund on cars unloaded at private siding, Gillies Depot	44 00	
45185—Loss account, shortage, lamp globes, claim No. 7557	9 10	
45668—Electric current, November, 1913	168 57	
46535—Current supplied, February, 1914	49 31	
46440—Current supplied, Cobalt, freight shed station and agent's house, March, 1914	51 39	
47323—Current supplied, Cobalt, freight shed station and agent's house, April, 1914	34 11	
47707—Current supplied, May, 1914	25 15	
48972— " " freight sheds, station, and agent's house, June, 1914	24 67	
50073— " " Cobalt freight shed, station agent's house, August, 1914	23 15	
50415—Current supplied, freight sheds, station, Sept., 1914	27 71	
50414— " " " Oct., 1914	53 55	
48282— " " " July, 1914	23 47	
		$574 61

NORTHERN ONTARIO LIGHT & POWER CO., COCHRANE, ONT.

45711—Current supplied, Cochrane, Dec. 19-31, 1913		$20 96	
45330— " " Dec. 19th, 1913, to Jan. 21st, 1914		82 81	
47782— " " May, 1914		5 92	
48296— " " June, 1914		26 00	
48984— " " July, 1914		29 12	
50079— " " August, 1914		34 80	
50428— " " September and October, 1914		133 36	
			$232 97

NORTH BAY LIGHT, HEAT & POWER CO., NORTH BAY, ONT.

43843—Ampered fuse, plugs and time		$1 20	
45053—Current consumed, Oct. to Dec., 1913		1 00	
45282— " " Dec., 1913, to Jan., 1914		50	
45936— " " Jan. to Feb., 1914		50	
46681— " " Feb. to March, 1914		50	
47339— " " March to April, 1914		50	
47617— " " May, 1914		50	
48579— " " May to July, 1914		1 00	
48964— " " July to August, 1914		50	
50203— " " August to September, 1914		50	
50408— " " September to October, 1914		50	
			$7 20

NORTH BAY FUEL CO., NORTH BAY, ONT.

45082—Overcharge, demurrage account, error in billing, claim No. 8025	$3 00	
		$3 00

THE NORTH RAILWAY CO., MONTREAL, QUE.

43822—Overcharge in rate on meat, claim No. 7644	$0 40	
		$0 40

NORTH BAY HARNESS WORKS, NORTH BAY, ONT.

45879—Leather straps	$2 30	
		$2 30

AUBREY NELSON, HEASLIP, ONT.

45449—Ties	$16 60	
46269— "	7 70	
		$24 30

NORTH BAY PROVISION CO., NORTH BAY, ONT.

50290—Groceries	$15 17	
		$15 17

NORTH WESTERN EXPANDED METAL CO., CHICAGO, ILL.

45883—Waste baskets	$7 20	
45980— " "	6 90	
		$14 10

J. C. NELSON, HEASLIP, ONT.

48581—4 cords wood	$7 00	
		$7 00

NATIONAL STANDARD MFG. CO., NILES END.

49211—Track drill	$23 50	
		$23 50

NIAGARA, ST. CATHARINES & TORONTO RY., ST. CATHARINES, ONT.

43852—Outstanding on silver ore account, overcharge in weight.	$3 92	
49505—Overcharge in weight on silver ore, claim No. 8286.....	9 56	
		$13 48

NIPISSING STORES, LTD., COBALT. ONT.

44012—Loss, shirts pilfered in transit, claim No. 7431	$6 25	
		$6 25

NOBLE MANUFACTURING CO., LTD., ST. THOMAS, ONT.

46304—Loss, candy and biscuits destroyed by fire, Cochrane, Dec. 6th, 1913, claim No. 7888	$5 24	
		$5 24

W. B. NAYLOR, COBALT, ONT.

47398—Loss, provisions missing and spoiled account delay, claim No. 7974	$33 99	
		$33 99

NIPISSING POWER CO., LTD., TORONTO, ONT.

47954—No. 4 D.C. cable, conduit, condulets	$46 22	
48753—Power supplied, June, 1914	63 64	
48960— " " July, 1914	61 17	
50071— " " August, 1914	61 60	
49844— " " September, 1914	65 35	
50410— " " October, 1914	98 41	
		$396 39

NICHOLS CHEMICAL CO., LTD., MONTREAL, QUE.

47956—Sulphuric acid	$108 20	
49217—Battery acid	29 83	
		$138 03

NEW YORK, PHILADELPHIA & NORFOLK RY., PHILADELPHIA, PA.

48271—Car service balance, May, 1914	$7 20	
		$7 20

THE NEWS PRINTING CO., AYR, ONT.

48427—Advertisement, homeseekers' excursion	$1 00	
		$1 00

THE NEWS PRINTING CO., LTD., ALEXANDER, ONT.

48799—Advertisement, homeseekers' excursion	$0 65	
		$0 65

THE NORTHERN ADVANCE, BARRIE, ONT.

48821—Advertisement, homeseekers' excursion	$1 25	
		$1 25

THE DAILY NEWS, CHATHAM, ONT.

48829—Advertisement, homeseekers' excursion	$3 08	
		$3 08

THE NEWS, WALLACEBURG, ONT.

49047—Advertisement, homeseekers' excursion	$0 75	
		$0 75

THE NORTH HASTINGS REVIEW, MADOC, ONT.

48903—Advertisement, homeseekers' excursion	$1 00	
		$1 00

NIAGARA FALLS REVIEW, NIAGARA FALLS, ONT.

48896—Advertisement, homeseekers' excursion	$1 00	
		$1 00

THE NORWICH GAZETTE, NORWICH, ONT.

48917—Advertisement, homeseekers' excursion	$1 25	
		$1 25

THE NIAGARA TIMES, NIAGARA-ON-THE-LAKE, ONT.

48925—Advertisement, homeseekers' excursion	$0 50	
		$0 50

NEWMARKET ERA OFFICE, NEWMARKET, ONT.

48929—Advertisement, homeseekers' excursion	$1 40	
		$1 40

THE NORWOOD REGISTER, NORWOOD, ONT.

48931—Advertisement, homeseekers' excursion	$3 00	
		$3 00

NEWS PUBLISHING CO., TORONTO, ONT.

49037—Advertisement, homeseekers' excursion	$12 60	
		$12 60

NORTH ONTARIO OBSERVER, PORT PERRY, ONT.

48969—Advertisement, homeseekers' excursion	$2 00	
		$2 00

THE NORTH STAR, PARRY SOUND, ONT.

48987—Advertisement, homeseekers' excursion	$3 10	
		$3 10

THE NEWS-ARGUS, STERLING, ONT.

49001—Advertisement, homeseekers' excursion	$1 50	
		$1 50

NORTHERN ONTARIO TIMES, UXBRIDGE, ONT.

49039—Advertisement, homeseekers' excursion	$2 00	
		$2 00

THE OFFICE SPECIALTY MANUFACTURING CO., LTD., TORONTO, ONT.

43845—Repairing chair	$0 75	
44720—Filing cabinet	19 00	
44878—File boards, filing cabinets	24 50	
45885—Letter cabinet	15 75	
47214—Filing cabinet, repairing chair, ends for cabinet	28 06	
49947—Checking boards, guides	8 94	
		$97 00

W. J. Oldham, Supt. Bridge and Building Dept., North Bay, Ont.

44273—Expenses, October, 1913	$18 70		
44508— " November, 1913	16 25		
44766— " December, 1913	16 50		
45537— " January, 1913	24 75		
45872— " February, 1914	18 35		
46617— " March, 1914	18 75		
46974— " April, 1914	8 75		
47661— " May, 1914	2 25		
47622— " June, 1914	18 10		
48677— " July, 1914	23 25		
48822— " August, 1914	24 70		
50151— " September, 1914	20 30		
50080— " October, 1914	11 05		
			$221 70

Ontario Disinfectant Co., North Bay, Ont.

44523—Carbolacene	$31 50		
44724— "	31 50		
45887— "	12 00		
45984— "	31 50		
			$106 50

James A. Ogilvie & Sons, Montreal, Que.

44821—Flags	$9 36		
45889—Linoleum	52 50		
45988—Flags and linoleum	210 75		
46887—Carpet	136 35		
47210—Flags	16 56		
47879— "	2 16		
47964— "	5 04		
48212— "	2 16		
49229— "	10 80		
49190— "	7 20		
50333— "	3 60		
			$456 48

Ottawa Car Co., Ltd., Ottawa, Ont.

44722—Baggage sleigh	$20 00		
45891— " "	20 00		
44525— " "	40 00		
			$80 00

The O'Brien Mines, Ltd., Cobalt, Ont.

43717—Overcharge in rate, caustic soda, claim No. 7444	$4 01		
45218—Loss, account damage to electrical machinery, claim No. 7598	28 33		
			$32 34

Oregon Short Line R.R., Salt Lake City, Utah.

45373—Car service balance, November, 1913	$5 85		
45460— " " " December, 1913	4 05		
48676— " " " June, 1914	90		
			$10 80

P. S. O'Brien, Cochrane, Ont.

49674—Ink	$0 95		
			$0 95

OREGON, WASHINGTON R.R. & NAVIGATION CO., PORTLAND, ORE.

44105—Car service balance, September, 1913			
44344— " " " October, 1913			
45375— " " " November, 1913			
45462— " " " December, 1913			
46391— " " " January, 1914			
46826— " " " February, 1914			
47251— " " " March, 1914			
47510— " " " April, 1914			
49417— " repairs, bill No. 32105			
49779— " service balance, July, 1914			
49492— " " " August, 1914			
50124— " " " September, 1914			
	$2 25		
	1 35		
	2 70		
	15 30		
	4 95		
	1 80		
	5 85		
	4 50		
	18 96		
	6 75		
	5 40		
	4 50		
			$74 31

OWEN SOUND WIRE FENCE CO., OWEN SOUND, ONT.

49225—Fence	$489 61	
49192— "	504 90	
		$994 51

ONTARIO REFORMATORY INDUSTRIES, TORONTO, ONT.

49227—Brooms	$42 50	
49186— "	25 50	
50004— "	25 50	
		$93 50

ONTARIO LABOR LAWS, TORONTO, ONT.

44275—Advertisement	$25 00	
		$25 00

OIL WELL SUPPLY CO., LTD., PETROLIA, ONT.

45986—Working barrel, etc., Feb. 7th, 1914	$33 00	
47212—Brass working barrel and valves complete	54 00	
		$87 00

OFFICIAL LABOR DAY SOUVENIR AND PROGRAMME, TORONTO, ONT.

46378—Advertising, Official Labor Day Souvenir and Programme	$15 00	
		$15 00

O'BRIEN, MACDOUGALL & O'GORMAN, HEARST VIA COCHRANE, ONT.

46224—Freight on stoves damaged in transit, claim No. 6683...	$11 87	
47338—Refund of freight on drum of gasoline lost from car at Widdifield and forwarded L.C.L. under charges to destination from Cochrane	6 90	
		$18 77

O'BRIEN & MARTIN, PETER BROWN CREEK, ONT.

44493—Coal, B. and S. car No. 10541	$19 05	
45712—Difference between car No. 10797 and B. and S. car No. 9844	30 38	
		$49 43

EDWARD O'LEARY, PORCUPINE, ONT.

46303—For station grounds at New Liskeard	$2,200 00	
		$2,200 00

MRS. M. OLIVER, HAILEYBURY, ONT.

46504—Damage to table in transit, claim No. 7735	$5 00	
		$5 00

O'GRADY BROS., NEW LISKEARD, ONT.

46137—Loss, account shortage four plow handles, claim No. 7740	$1 20	
		$1 20

A. OSCAR, TIMMINS, ONT.

46306—Loss, account shortage Quaker Oats, claim No. 7461	$9 70	
		$9 70

H. A. OGILVIE, GOLDLANDS, ONT.

44470—Ties	$37 50	
		$37 50

FRANK OHLMANN, IROQUOIS FALLS, ONT.

45570—Ties	$109 98	
46882— "	54 60	
47220— "	162 91	
		$327 49

A. OTOPKEN, IROQUOIS FALLS, ONT.

46522—Ties	$148 80	
46658— "	79 50	
		$228 30

D. O'CONNOR, CONNAUGHT, ONT.

45144—Piles	$333 24	
45144— "	183 60	
48184—Ties	191 75	
48609—Telegraph poles	150 00	
48609— " "	80 00	
48609—Ties	103 30	
		$1,041 89

JOHN OLSON, KENABEEK, ONT.

45677—Ties	$37 40	
46658—Ties	17 60	
		$55 00

ONTARIO SEWER PIPE CO., MIMICO, ONT.

47877—6" pipe	$306 60	
47962—8" pipe and 6" elbows	24 53	
49231—6" pipe	21 00	
49188—6" pipe	306 60	
50339—6" pipe	306 60	
50294—6" pipe	306 60	
		$1,271 93

OKLAHOMA CENTRAL, CHICKASHA, OKLA.

48061—Car repairs, bill No. 5453	$3 41	
48104— " " " 5585, April, 1914	6 65	
49415— " " " 5649, 5737, June, 1914	6 74	
		$16 80

THE OBSERVER AND STAR, DRYDEN, ONT.

48839—Advertisement, homeseekers' excursion	$0 75	
		$0 75

THE OBSERVER, HENSALL, ONT.

48863—Advertisement, homeseekers' excursion	$2 00	
		$2 00

THE OXFORD TRIBUNE, INGERSOLL, ONT.

48871—Advertisement, homeseekers' excursion	$1 00	
		$1 00

THE ORONO NEWS, ORONO, ONT.

48941—Advertisement, homeseekers' excursion	$2 00	
		$2 00

THE OAKVILLE NEWS, OAKVLILE, ONT.

48943—Advertisement, homeseekers' excursion	$2 00	
		$2 00

THE OSHAWA VINDICATOR, OSHAWA, ONT.

48947—Advertisement, homeseekers' excursion	$1 50	
		$1 50

THE OBSERVER PRINTING HOUSE, TILLSONBURG, ONT.

49027—Advertisement, homeseekers' excursion	$1 00	
		$1 00

J. A. O'DONNELL, NORTH BAY, ONT.

48824—Expenses, June, 1914	$3 75	
49897— " July, 1914	22 37	
		$26 12

OTTAWA PAINT WORKS, OTTAWA, ONT.

49184—Turpentine	$101 31	
50335—Linseed oil	30 44	
		$131 75

OTTAWA & NEW YORK RY. CO., NEW YORK, N.Y.

49731—Ticket balance, May, 1914	$0 20	
		$0 20

THE OUTLOOK-TRIBUNE, COURTRIGHT, ONT.

50083—Advertisement, homeseekers' excursion	$3 50	
		$3 50

OTLEY PAINT MANUFACTURING CO., CHICAGO, ILL.

50337—Steam joint cement	$11 25	
		$11 25

OFFICIAL CLASSIFICATION, NEW YORK, N.Y.

49846—Copies Supplement No. 6 to Official Classification No. 41, bill No. 13634	$1 87	
		$1 87

JAMES A. OGILVIE & SONS, MONTREAL, QUE.

50006—Canvas, flags	$37 40	
50296—Flags	4 68	
		$42 08

ONTARIO SEWER PIPE CO., LTD., MIMICO, ONT.

50008—6" pipe	$340 20	
		$340 20

PAGE-HERSEY IRON & TUBE CO., LTD., TORONTO, ONT.

44568—Pipe	$45 82	
44570— "	11 29	
44572— "	36 11	
45119— "	24 50	
45610— "	29 93	
46237— "	16 09	
46479— "	29 41	
46904— "	15 08	
47787— "	25 59	
47686— "	45 08	
48545— "	48 44	
48585— "	262 02	
49873— "	29 94	
50347— "	32 01	
49544— "	28 87	
		$680 18

PILKINGTON BROS., LTD., TORONTO, ONT.

44564—Glass	$37 04	
44566— "	12 25	
45544— "	12 11	
46906— "	26 46	
47129— "	6 12	
47539— "	1 12	
47684— "	28 68	
47758— "	12 68	
48583— "	32 53	
48592—Loss, account plate glass broken in transit, claim No. 7232	148 92	
48592—Glass	4 06	
49553— "	123 08	
49641— "	25 40	
49871— "	17 70	
49546— "	8 12	
50308— "	21 76	
		$518 03

PAGE WIRE FENCE CO., WALKERVILLE, ONT.

47226—42" acme lawn fence	$47 47	
49194—Set of tools	8 50	
		$55 97

THE N. L. PIPER RAILWAY SUPPLY CO., LTD., TORONTO, ONT.

44529—Supplies as per statement attached to voucher	$311 81
44823—Wire carriers	15 00
44726—Map wringers, supplies, oil feeders, chimneys	46 05
44882—Supplies as per statement attached to voucher	82 89
45893—Mop rags, supplies, lantern globes	60 90
45990—Forks for switch lamps	7 20
46889—Lamp parts, supplies, Feb. and March, 1914	126 90
47230—Supplies as per statement attached to voucher	78 15
47887—Switch lamps, mop rags	184 03

THE N. L. PIPER RAILWAY SUPPLY CO., LTD., TORONTO, ONT.—*Continued.*

47966—Supplies as per statement attached to voucher	$58 30	
49221— " " " " "	38 66	
49206—Brass office lamps, lanterns, burners, etc.	94 85	
50343—Water gauge, lamp covers	43 32	
50012—Ventilators, torches	14 25	
50300— " hoods for switch lamps	15 00	
		$1,176 31

PIGEON, WARNER & STEWART TYPEWRITER CO., NORTH BAY, ONT.

49678—Repairs to Remington typewriter	$7 00	
		$7 00

PHILADELPHIA & READING RAILROAD CO., PHILADELPHIA, PA.

44557—Car repairs, bill No. 6351, Aug. 13, 22, 23	$ 0 87	
45377— " service balance, November, 1913	45	
45038— " repairs, Sept., bill No. 7102	2 04	
46073— " " bill No. 7699, Oct. 2, 31, 1913	24 37	
46144— " " bill No. 324, Nov. 4, 22, 1913	5 56	
46431—Ticket balance, January, 1914	1 25	
46735—Car repairs, bill No. 824, Nov., Dec., 1913	2 50	
46935— " " bill No. 1271, Jan. 16, 26, 1914	7 84	
47253— " service balance, March, 1914	34 05	
48063— " repairs, bill No. 1703	2 08	
47512— " service balance, April, 1914	3 60	
48277— " " " May, 1914	45	
49421— " repairs, bill No. 2738	54	
49340— " " " 3350, May 9, 1914	51	
49997— " " " 3921, June 1, 23, 1914	20 69	
49604—Refund amount collected at destination account charges fully prepaid, claim No. 8545	9 38	
		$116 18

PITTSBURG & LAKE ERIE RAILROAD, PITTSBURG, PA.

45040—Car repairs, bill Nos. 14679, 14684	$40 24	
46146— " " " 17420, Dec., 1913	49	
46737— " " " 839, Nov. to Jan., 1914	5 94	
46932— " " " 2168, Feb., 1914	1 95	
48108— " " " 5233, April, 1914	54	
49425— " " " 6787, May, 1914	2 42	
		$51 58

PITTSBURG, SHAWMUT & NORTHERN RY., ST. MARY'S, PA.

44107—Car service balance, September, 1913	$1 80	
44891— " repairs, bill No. 10202	5 68	
44346— " service balance, October, 1913	22 50	
45379— " " " November, 1913	20 70	
45464— " " " December, 1913	33 75	
46830— " " " February, 1914	7 20	
47257— " " " March, 1914	15 75	
47514— " " " April, 1914	1 35	
48112— " repairs, bills Nos. 5156, 4165, March and April, 1914	4 59	
		$113 32

PENNSYLVANIA RAILROAD CO., PHILADELPHIA, PA.

44109—Car service balance, September, 1913	$310 50	
44513—Car repairs, September, bill Nos. 27-9865	66	
44889—Car repairs, Nov. to Sept., 1913, bill Nos. 2-5760	18 58	
44348—Car service balance, October, 1913	327 15	
44390—Ticket balance, October, 1913	1 25	

PENNSYLVANIA RAILROAD CO., PHILADELPHIA, PA.—*Continued.*

44446—Movement of car "Sir James" New York to Washington and storage charges on car	$243 92	
45381—Car service balance, November, 1913	339 90	
45034—Car repairs, bill Nos. 27-619, October, 1913	4 84	
45479—Expenses private car "Sir James" at Long Island, Dec., 1913	4 69	
45466—Car service balance, December, 1913	523 25	
46067—Car repairs, bill Nos. 2-6989, 27-1266, Sept. 23 to Nov. 22, 1913	80 00	
46069—Car repairs, bill Nos. 83-1953, Nov. 4 to Dec. 1, 1913	30 82	
46140—Car repairs, bill Nos. 60-2802, Nov. 3 to Dec. 20, 1913	2 20	
46393—Car service balance, January, 1914	327 15	
46429—Ticket balance, January, 1914	1 25	
46733—Car repairs, bill Nos. 2-9106, 83-2287	10 65	
46644—Car repairs, bill Nos. 3155, 2-331, 27-2467	46 20	
46832—Car service balance, February, 1914	321 45	
46942—Car repairs, bill Nos. 27-2946, February, 1914	8 75	
47259—Car service balance, March, 1914	297 10	
47719—Car repairs, bill No. 60-3857, Jan., Feb. and March, 1914	18 40	
48067—Car repairs, bill No. 33840	2 23	
47444—Car service balance, April, 1914	144 45	
48114—Car repairs, March and April, 1914, bill Nos. 4230, 3438, 4311, 2551	56 27	
48281—Car service balance, May, 1914	109 35	
48773—Car repairs, bill Nos. 83-3734, 27-4879, 3-498	20 42	
49419—Car repairs, bill No. 37079, May, 1914	17 01	
48680—Car service balance, June, 1914	229 10	
49342—Car repairs, bill No. 3-1049	30 95	

PENNSYLVANIA RAILROAD CO.

49821—Car service balance, July,1914	$89 10	
49494—Car service balance, August, 1914	134 85	
49602—Overcharge in weight on silver ore, claim No. 7867	1 57	
49770—Car repairs, bill Nos. 3-1640, 250-393, 251-315, 254-62, 253-91	55 19	
50126—Car service balance, September, 1914	48 20	
		$3,857 40

PENNSYLVANIA STEEL CO., PHILADELPHIA, PA.

50345—Locking latches for switch stands	$17 16	
50306—Cranks for new century switch stands	9 00	
		$26 16

THE HIRAM L. PIPER CO., LTD., MONTREAL, QUE.

50351—Switch lamps, burners and supplies	$253 75	
		$253 75

J. H. PATTERSON, OTTAWA, ONT.

49522—Blue prints of township lands and timber maps	$55 00	
		$55 00

PIPE AND PRESLEY, COBALT, ONT.

43897—Loss account, shortage molasses and tooth picks, claim No. 7462	$3 91	
43899—Overcharge in weight, potatoes, claim No. 6963	18 24	
45086—Loss account, shortage one box chocolates, claim No. 7416	1 80	
47003—Loss chloridelime short in transit, claim No. 7443	4 21	
49701—Loss account, shortage tobacco, claim No. 8161	12 63	
		$40 79

E. PETERS, EARLTON, ONT.

44831—Ties	$20 00	
		$20 00

THE PULLMAN CO., CHICAGO, ILL.

44444—Proportion of ticket sales account, Pullman Co., bill No. 68722	$6 50	
47493—Proportion of ticket sales between Toronto and Englehart, August, 1913	8 30	
47663—Repairs to pullman car "Charleroi," damaged near Gillies, Ont., March 9, 1914	718 81	
47370—Construction of steel passenger equipment, consisting of 1 steel first class passenger coach, 1 steel second class passenger coach, 1 steel first and second class smoking car, 1 steel baggage and express car, 1 steel baggage and mail car	72,869 00	
47568—Construction of steel passenger equipment, consisting of 2 steel first class coaches, 1 second class coach, 2 steel first and second class smoking cars, 2 steel baggage and mail cars, 1 steel baggage and express car	118,568 50	
48746—Services of car "Magnet" and supplies furnished, June 23-25, 1914	109 79	
49843—Time and expenses of messengers delivering steel cars	242 60	
50154—Trucks for private car "Sir James," and car material for private car "Temagami"	25,769 00	
50448—Expenses delivering equipment	64 85	
		$218,357 35

PERE MARQUETTE RAILROAD, DETROIT, MICH.

44555—Car repairs, March to July, bill No. R 1163	$14 54	
46142—Car repairs, June to September, 1913, bill No. R 1233	8 58	
46638—Car repairs, August, 1913, bill No. R 1914	2 59	
46828—Car service balance, February, 1914	7 55	
46920—Car repairs, bill No. R 1243	52 73	
47255—Car service balance, May, 1914	3 75	
48065—Car service balance bill No. R 1574, December, 1913, January, 1914	37 68	
48279—Car service balance, May, 1914	7 65	
49423—Car repairs, bill No. R 1270-1877, May, 1914	17 12	
48678—Car service balance, June, 1914	43 75	
49344—Car repairs, bill No. 1505, June, 1914	34 44	
49774—Car repairs, bill No. R 108, August, 1914	23 12	
		$253 50

A. J. PARR, GENERAL FREIGHT AND PASSENGER AGENT, NORTH BAY, ONT.

43952—Expenses, November, 1913	$15 35	
44506— " December, 1913	19 00	
45539— " January, 1914	34 10	
45586— " February, 1914	39 60	
46573— " March, 1914	23 70	
46618— " April, 1914	49 45	
47495— " May, 1914	32 60	
47626— " June, 1914	30 50	
48679— " July, 1914	24 75	
48748— " August, 1914	20 05	
49899— " September, 1914	21 25	
49676— " October, 1914	28 60	
		$338 95

THOMAS PASSMORE, NORTH BAY, ONT.

45992—Pork	$3 18	
46897—Meats	9 57	
49307— "	586 00	
49200— "	344 20	
50353— "	163 60	
50014— "	77 25	
50304— "	300 88	
		$1,484 68

PACIFIC FRUIT EXPRESS, OMAHA, NEB.

45468—Car service balance, December, 1913	$10 90		
46395— " " January, 1914	6 24		
47261— " " March, 1914	1 54		
47516— " " April, 1914	4 38		
48283— " " May, 1914	3 55		
48682— " " June, 1914	77		
49781— " " July, 1914	3 87		
49496— " " August, 1914	1 69		
			$32 94

WILLIAM POLLOCK AND SONS, ENGLEHART, ONT.

44936—Slabs, lumber	$181 75	
		$181 75

PINTSCH COMPRESSING CO., NEW YORK, N.Y.

44369—Gas delivered to cars, North Bay, October, 1913	$247 05		
45721— " " " November, 1913	244 64		
45338— " " " December, 1913	243 92		
46551— " " " February, 1914	211 75		
47006— " " " January, 1914	235 17		
47347— " " " March, 1914	175 81		
47721— " " " April, 1914	148 95		
48128— " " " May, 1914	123 32		
48769— " " " June, 1914	144 93		
48986— " " " July, 1914	200 32		
50085— " " " August, 1914	145 57		
50200— " " " September, 1914	123 05		
			$2,244 48

E. PROCTOR, MCCOOL, ONT.

44233—Ties	$8 48	
		$8 48

PITTSBURG BUFFALO CO., PITTSBURG, PA.

44350—Car service balance, October, 1913	$1 54	
		$1 54

R. POWERS, NIPISSING JCT., ONT.

49962—Work performed on ditch at Nipissing Junction as per certificate No. 3 (final)	$25 10	
		$25 10

PEERLESS CARBON AND RIBBON CO., TORONTO, ONT.

44562—Carbon paper	$4 50	
47883— "	6 75	
49198— "	11 50	
50341— "	2 75	
50298— "	1 68	
		$27 18

JAMES PALANGIO, ATTORNEY FOR D. L. GIAMFIANESO, NORTH BAY, ONT.

45084—Loss, shellac jars broken in transit, claim No. 7072	$7 50	
46312—Loss account fish, etc., destroyed by fire, claim No. 7887	74 35	
		$81 85

PEERLESS TRANSIT CO., CLEVELAND, OHIO.

48119—Loss account shortage, oil barrels, claim No. 8610	$15 73	
		$15 73

H. Picard, North Bay, Ont.

46891—Groceries	$7 02	
47222—Groceries	8 12	
47489—Meals and supplies furnished, telegraph and telephone gang, May, 1914	14 77	
47970—Groceries	15 89	
		$45 80

Porter and Co., Elk Lake, Ont.

43903—Refund of freight collected in error account, wrong counting, claim No. 6874	$1 40	
		$1 40

Joseph Perrault, Matheson, Ont.

44831—Switch sets	$4 82	
45570—Ties	65 53	
46207—For s ½ lot 8, con. 6, Taylor, 66 acres	132 00	
46209—For s ½ lot 9, con 6, Taylor, 32 acres	64 00	
46522—Ties	31 50	
		$297 85

The Planet, Chatham, Ont.

44880—Printing forms	$3 00	
45619— "	21 00	
45895— "	77 75	
45996— "	34 50	
46895— "	38 50	
47228— "	155 25	
47885— "	84 05	
47972— "	61 00	
49237— "	29 05	
49208— "	39 50	
50349— "	66 50	
50302— "	80 80	
48827—Advertisement, homeseekers' excursion	6 00	
		$696 90

P. Picard, Lineman, North Bay, Ont.

43965—Expenses, October, 1913	$3 30	
44220— " November, 1913	4 95	
44770— " December, 1913	6 00	
45543— " January, 1914	4 05	
45876— " February, 1914	3 45	
46619— " March, 1914	5 30	
46976— " April, 1914	5 05	
47497— " May, 1914	6 50	
47624— " June, 1914	3 95	
48655— " July, 1914	3 70	
48826— " August, 1914	11 20	
50153— " September, 1914	3 45	
50372— " October, 1914	7 65	
		$68 55

Pittsburg, Cincinnati, Chicago and St. Louis Railroad.

44559—Car repairs, bill No. 83701	$5 15	
46553— " " 86760-86761	11 89	
46648— " " 87623	1 91	
46938— " " 88597	18 77	
48069— " " 89566	10 54	
48110— " " 90323	87	
49427— " " 91166	4 79	
49348— " " 92119	3 90	
		$57 82

CHARLES POTIER, TORONTO, ONT.

49845—Thermometer	$0 75	
		$0 75

PENNSYLVANIA CO., PITTSBURGH, PA.

44511—Car repairs, bill No. 23751	$0 47	
46003— " " 25454	11 33	
46097— " " 27075	2 70	
46138— " " 28796-29024, Oct. to Dec., 1912	21 13	
46640— " " 30463	30	
46940— " " 32467	64	
48116— " " 35431	1 44	
49346— " " 38742-38965	4 32	
		$42 33

POWER SPECIALTY CO., NEW YORK, N.Y.

49202—Repairs parts, valves	$44 40	
		$44 40

THE PANTASOTE CO., NEW YORK, N.Y.

45612—Pantasote	$56 93	
50010— "	113 85	
		$170 78

PITTSBURG SPRING AND STEEL CO., PITTSBURG, PA.

45994—Springs	$509 79	
48543— "	110 22	
49196— "	86 68	
49733— "	328 35	
49696— "	40 17	
		$1,075 21

C. G. PAYNE, ENGINEERING DEPT., COCHRANE, ONT.

43941—Expenses, September and October, 1913	$7 30	
44707— " November, 1913	6 80	
44768— " December, 1913	4 20	
45501— " January, 1913	16 55	
		$34 85

PENN GAS COAL CO., PHILADELPHIA, PA.

47263—Car service balance, March, 1914	$1 03	
47518— " " " April, 1914	7 24	
48285— " " " May, 1914	4 14	
		$12 41

E. F. PULLEN, COCHRANE, ONT.

43901—Balance of amount of rebate due on Alexo Mine siding, at Kilburn, claim No. 7634	$1 66	
		$1 66

PEORIA AND PEKIN UNION RAILWAY CO., PEORIA, ILL.

44515—Car repairs, bill No. 8827, August, 1913	$1 91	
46642— " " " 1852, October, 1913	46	
49772— " " " 7856, July, 1914	29	
		$2 66

PORCUPINE STATION, PORCUPINE, ONT.

45110—Outstanding account goods short, claim No. 7326	$2 07	
45112— " " " " 7880	2 34	
48139— " " " " 7602	91	
48404— " " " " 7760	2 46	
		$7 78

AGENT, T. & N. O. RY., PORQUIS JCT. STATION, ONT.

48406—Outstanding a/c shipment short, claim No. 8402.....	$1 05	
49713— " " " " " 8767.....	2 67	
		$3 72

PHILADELPHIA, BALTIMORE AND WASHINGTON R.R., PHILADELPHIA, PA.

45036—Car repairs, bill No. 136/4887	$ 32	
46071— " " 136/5874	42	
46646— " " 135/357	14 02	
46934— " " 136/6975	8 34	
		$23 10

PORCUPINE TELEPHONE LINES, LTD., SOUTH PORCUPINE, ONT.

45336—Rental of desk telephone, Timmins Station and Schumacher Station, to Aug. 5th and July 15th, 1914.....	$63 00	
47790—Telephone rental, desk telephone, June 5th, 1914, to June 5th, 1914	66 00	
48767—Telephone rental, Schumacher Station, July 15th to Jan. 15th, 1915	30 00	
48986—Telephone rental, Timmins, Aug. 5th, 1914, to Feb. 5th, 1915	33 00	
		$192 00

T. C. PATTERSON, LATCHFORD, ONT.

46310—Loss account, shortage, 1 box poultry and butter, claim No. 8143	$13 40	
		$13 40

G. PARKER, MASTER MECHANIC'S DEPARTMENT, NORTH BAY, ONT.

43943—Expenses, October, 1913	$1 00	
45874— " February, 1914	14 00	
47041— " March and April, 1914	10 00	
		$25 00

PATTERSON, WYLDE & CO., TORONTO, ONT.

44527—Flower seeds	$1 74	
		$1 74

JOHN PARIS, STEEL INSPECTOR, NORTH BAY, ONT.

45541—Expenses, December, 1913	$4 75	
		$4 75

JOHN B. PAINE, LTD., TORONTO, ONT.

46893—Paint	$1 80	
		$1 80

HERMAN PETERS, KENABEEK, ONT.

46577—Ties	$412 89	
47001—Loss account, shortage one crate cabbage, claim No. 8150	3 50	
		$416 39

W. Patterson, Monteith, Ont.

46658—Ties	$82 26	
		$82 26

Chas. Platt, New Liskeard, Ont.

44014—Loss white lead account, damage in transit, claim 7402	$1 80	
		$1 80

Pacific Electric Railway, Los Angeles, Cal.

48106—Car repairs, bill 23985, February, 1914	$1 20	
		$1 20

J. Pryor, Master Mechanic's Department, North Bay, Ont.

48828—Expenses, August, 1914	$1 30	
		$1 30

Pearce Meat Co., Ltd., North Bay, Ont.

47224—Meats	$6 29	
50016— "	144 38	
		$150 67

Chas. Pierce, Timmins, Ont.

45220—Loss, case eggs short, claim No. 7982	$10 50	
46308—Loss, biscuits short, claim No. 7984	8 90	
47412—Loss account, damage to dishes in transit, claim No. 7981	2 10	
		$21 56

Penn-Canadian Mines, Ltd., Cobalt, Ont.

44959—Overcharge in weight, silver ore, claim No. 7031	$42 27	
47101— " " " " 8065	9 88	
		$52 15

Provincial Association of Fire Chiefs, Toronto, Ont.

43799—For advertisement	$25 00	
45105— " "	25 00	
		$50 00

H. A. Palmer, Charlton, Ont.

43824—Shortage, one box dry goods in transit, claim 5751	$55 30	
		$55 30

Thos. Painter & Son, Toronto, Ont.

45029—Making box for grain samples, December, 1913	$5 90	
48414—Making shelf to desk	1 58	
		$7 48

Wm Pollard, Cochrane, Ont.

44961—Loss account, shortage case invalid port, claim No. 7602	$6 00	
		$6 00

Pedlar People, Limited, Oshawa, Ont.

49233—Culverts	$595 00	
49204—Freight on car load culverts	45 60	
		$640 60

H. Rowell, Pontypool, Ont.

45107—For unclaimed wages, man. No. 89, pay roll 68, June, 1913	$19 42	$19 42

L. Piche & Son, New Liskeard, Ont.

46228—Loss account, damage to beef, claim 8220	$4 24	$4 24

Preston Car & Coach Co., Ltd., Preston, Ont.

47491—Oak panels	$44 61	$44 61

Prescott Emery Wheel Co., Prescott, Ont.

47881—Flour emery	$ 56	$ 56

Porter & Co., Elk Lake, Ont.

47410—Loss account, damage to sleigh in transit, claim No. 8073	$2 00	$2 00

Thomas Pink Co., Ltd., Pembroke, Ont.

47968—Peaveys	$6 64	
49235— "	6 64	
48590— "	13 01	
		$26 29

Parson's Fair, North Bay, Ont.

48214—Jugs	$1 00	$1 00

Wm. W. Pittard, "Almonte Times," Almonte, Ont.

48389—Advertisement, homeseekers' excursion	$3 50	$3 50

William Panton, "Canadian Champion," Milton, Ont.

48429—Advertisement, homeseekers' excursion	$1 00	$1 00

W. Powell, "East Elgin Reformer," Aylmer, Ont.

48501—Advertisement, homeseekers' excursion	$1 50	$1 50

A. S. Post, Dane P.O.

48609—Ties	$90 29	
50437— "	44 30	
		$134 59

C. Plesbatin, Heaslip, Ont.

48609—Fence posts	$96 00	$96 00

F. C. Preston & Co., Haileybury, Ont.

48771—Cotton	$10 39	$10 39

"THE PROGRESS," HEPWORTH, ONT.

48861—Advertisement, homeseekers' excursion $1 00 $1 00

"PRESCOTT AND RUSSELL ADVOCATE," L'ORIGNAL, ONT.

48887—Advertisement, homeseekers' excursion $6 00 $6 00

"PEMBROKE STANDARD, LTD.," PEMBROKE, ONT.

48983—Advertisement, homeseekers' excursion $2 85 $2 85

JAMES PATTERSON & SON, "MEAFORD MIRROR, MEAFORD, ONT.

48895—Advertisement, homeseekers' excursion $1 50 $1 50

"THE PORT CREDIT NEWS," PORT CREDIT, ONT.

48989—Advertisement, homeseekers' excursion $2 00 $2 00

E. J. POLLARD, "THE NAPANEE EXPRESS."

48921—Advertisement, homeseekers' excursion $1 60 $1 60

"THE PRESS," WINCHESTER, ONT.

49045—Advertisement, homeseekers' excursion $2 50 $2 50

"THE PARIS REVIEW," PARIS, ONT.

48955—Advertisement, homeseekers' excursion $2 50 $2 50

"THE PICTON TIMES," PICTON, ONT.

48957—Advertisement, homeseekers' excursion $1 60 $1 60

"PICTON GAZETTE PUB. CO.," PICTON, ONT.

48959—Advertisement, homeseekers' excursion $1 25 $1 25

"THE PORT PERRY STAR." PORT PERRY, ONT.

48967—Advertisement, homeseekers' excursion $2 00 $2 00

"THE PORT HOPE TIMES," PORT HOPE, ONT.

48975—Advertisement, homeseekers' excursion $2 70 $2 70

D. MACKENZIE, "PAISLEY ADVOCATE," PAISLEY, ONT.

48977—Advertisement, homeseekers' excursion $1 50 $1 50

"PORT COLBORNE CITIZEN," PORT COLBORNE, ONT.

48979—Advertisement, homeseekers' excursion ..... $ 50 $ 50

"The Plattsville Echo," Plattsville, Ont.

48981—Advertisement, homeseekers' excursion	$1 20	
		$1 20

Quebec, Montreal & Southern Ry., Albany, N.Y.

44352—Car service balance, October, 1913	$9 90	
45385— " " " November, 1913	16 65	
45470— " " " December, 1913	9 45	
47265— " " " March, 1914	5 40	
48071— " repairs, bill 5695, April, 1914	8 82	
48287— " service balance, May, 1914	45	
49783— " " " July, 1914	5 40	
49498— " " " August, 1914	4 95	
		$61 02

Quebec Ry. Light & Power Co., Quebec, Que.

48532—Ticket balance, June, 1914	$138 75	
		$138 75

Quebec & Lake St. John Railway, Toronto, Ont.

44111—Car service balance, September, 1913	$ 45	
44354— " " " October, 1913	5 40	
		$5 85

Quebec Central Railway, Sherbrooke, Que.

44356—Car service balance, October, 1913	$1 80	
45387— " " " November, 1913	2 25	
45472— " " " December, 1913	5 40	
		$9 45

Miss Ella M. Quinn, North Cobalt, Ont.

46139—Shortage toilet articles from case in transit, claim No. 7677	$2 25	
		$2 25

Chas. Quist, Charlton, Ont.

47340—Overcharge in weight on hay, claim No. 8100	$8 61	
		$8 61

Mrs. Thos. Quigg, Quyon, Ont.

47432—Donation, account alleged injury, Thos. Quigg, deceased, Cobalt, April 3rd, 1914	$200 00	
		$200 00

Wm. Quinn, Charlton, Ont.

49430—Loss account, shortage two bags oats, claim No. 8575	$2 63	
		$2 63

Rice, Lewis & Son, Ltd., Toronto, Ont.

44533—Glaziers' points	$0 90	
44692—Lock	54	
44730—Pipe cutters, washers, etc	4 98	
44884—Axe, pulleys	70	
46002—Glass cutters, cuspidors	6 94	
46901—Wick trimmers, wire gauge	4 31	
47891—Wire cutters and pliers, garden rakes	4 60	
47976—Bench vises, auger	34 61	
49239—Level bulbs, pipe cutter, grindstones, ladders	98 45	
49214—Wick trimmers	2 12	
50312—Coach keys	6 97	
		$165 12

J. W. Richardson, North Bay, Ont.

44335—Weather strip	$16 00	
44741—Hangers	11 65	
44825—Glass	3 50	
44576—Burlap	5 24	
44578—Castings	6 98	
45081—Castings	1 41	
45899—Sand paper, alabastine paints	15 35	
45998—Power bolts	19 55	
46382—Hangers	1 65	
47038—Castings	6 11	
47131—Granite pots and bowls	6 11	
47619—Plate glass, castings, dishes	21 18	
47789—Barn door hangers, mattresses	43 15	
47688—Mattresses	11 64	
48547—Japalac, door hangers	14 69	
48587—Doors and windows	26 77	
48594—Tar felt	32 67	
48596—Barn door hangers	13 48	
49877—Barn door hangers, van mattresses	16 64	
50359—White enamel	1 80	
50022—Castings, mirror and thermometer	5 10	
		$274 86

Reamsbottom & Edwards, Porcupine, Ont.

43667—Loss, sugar from bag in bad order, with connections, claim No. 7476	$1 95	
46234—Overcharge in weight, potatoes, claim No. 7819	17 64	
46314— " " hay, claim No. 7866	4 17	
47342— " " hay, claim No. 8217	2 54	
47414—Loss one bag potatoes, shortage, claim No. 7736	92	
48143— " " flour, shortage, claim No. 7469	1 75	
		$28 97

M. Rothschild, Cochrane, Ont.

43723—Loss, two bottles whiskey, broken in transit, claim No. 7179	$1 55	
43725—Loss, four bottles whiskey, account shortage and damage in transit, claim No. 7178	3 32	
43854—Loss, gin, broken in transit, claim No. 7579	10 10	
44020—Over assessment of demurrage, claim No. 7700	4 00	
44022—Loss, bottle whiskey, broken in transit, claim No. 7563	95	
44134— " two bottles whiskey, broken in transit, claim No. 7575	1 40	
44136— " account, beer in transit, claim No. 7153	2 10	
44995— " fruit jars, broken, claims No. 7850-7856-7857	3 71	
44997— " whiskey, broken in transit, claim No. 7570	3 33	
45189— " account, shortage, one case whiskey and freight, claim No. 7853	6 94	
45088— " whiskey and freight charges, claim No. 7571-7855	11 30	
45222— " " " 7858	3 05	
46143— " " " 7177	4 30	
46230— " " " 7897-7940	12 37	
46316— " cigars. destroyed by fire. claim No. 7896	200 00	
46506— " whiskey, broken in transit, claim No. 7851	2 27	
47007— " " " 8372	1 40	
47103— " " " 7830	2 28	
48121— " whiskey in transit, claim No. 8370-8371	3 60	
48367— " " " 7852	1 04	
48378— " " " 8462	88	
48440— " " " 7885	12 80	
		$292 69

HORACE REID, HAILEYBURY, ONT.

48494—Full and final settlement of all claims or demands re alleged injuries received at Haileybury, Dec. 20th. 1913	$72 50	
		$72 50

REMINGTON TYPEWRITER CO., LTD., TORONTO. ONT.

43849—Inspection of Monarch, No. 3c/55826, Nov. 1913	$1 00	
44371— " " 3c/55826, Dec., 1913	1 00	
45057— " " 3c/55826, Jan., 1914	1 00	
45723—Book carbon coupons	12 00	
45670—Book carbon coupons, No. 3B/75087, Feb., 1914	7 00	
46481—Inspection of Monarch, No. 3c/55826, March, 1914	1 00	
47010—Red and black carbons	14 00	
47068—Inspection of Monarch, No. 3c/55826, April, 1914	1 00	
47551— " " 3/55826, Apr.-May-June, 1914	3 00	
47895—Typewriter 11D/408394 (office Supt. of Traffic)	127 28	
50432—Inspection of Monarch 3/55826, carban paper	8 00	
		$176 38

A. C. RORABECK, NORTH BAY, ONT.

44531—"Rough on Rats"	$0 40	
44841—Ammonia	4 50	
45901—Ammonia	4 50	
46905—Sulphuric acid	25	
49216—Oxalic acid	35	
		$10 00

RUTLAND RAILWAY, NEW YORK, N.Y.

44141—Ticket balance, September, 1913	$5 68	
44358—Car service balance, October, 1913	7 20	
44392—Ticket balance, October, 1913	5 83	
45429—Ticket balance, November, 1913	29 31	
45474—Car service balance, December, 1913	1 80	
45512—Ticket balance, December, 1913	24 02	
46005—Car repairs, bill No. 11-13-5-22	36	
46868—Ticket balance, February, 1914	14 81	
46433—Ticket balance, January, 1914	10 55	
49999—Car repairs, bill No. 7-14-427	1 00	
50128—	95	
		$101 51

RICHMOND, FREDERICKSBURG & POTOMAC RAILROAD, RICHMOND, VA.

45476—Car service, balance, December, 1913	$6 30	
47267— " " March, 1914	45	
47520— " " April, 1914	11 25	
48289— " " May, 1914	7 20	
		$25 20

W. G. REID, EARLTON, ONT.

48534—Loss account, shortage whiskey, claim No. 7876	$17 00	
		$17 00

ROUTLY SUMMERS, HAILEYBURY, ONT.

44092—Surveys, plans and descriptions of T. & N. O. Ry. wye at Timmins	$55 00	
		$55 00

RAILWAY EQUIPMENT & PUBLISHING CO., NEW YORK, N.Y.

45288—Registration of rolling stock equipment, January, 1913, to December, 1914	$86 00	
46305—Subscription, March to February, 1915	7 50	
47349—Representation in Railway Line clearances from January, 1914, to October, 1914	10 00	
48992—Copies of Railway Line clearances, No. 69, July, 1914	22 50	
		$126 00

"RAILROAD AGE GAZETTE," NEW YORK, N.Y.

44090—Subscription, December, 1913, to December 31st	$6 00	
45587— " January 1st, 1914, to January 1st, 1915	6 00	
45725— " (seven) to December 31st, 1914	9 00	
46191— " to March 31st, 1915	6 00	
37351— " for one year, including special daily editions to May 31st, 1915	6 00	
		$33 00

H. L. RODGERS (MASTER MECHANIC'S DEPT.), NORTH BAY, ONT.

44709—Expenses, November, 1913	$59 76	
45547— " January, 1914	55 10	
45878— " February, 1914	51 40	
46380— " March, 1914	16 50	
47043— " April, 1914	41 00	
47632— " June, 1914	73 30	
48240— " May, 1914	65 45	
48830— " July and August, 1914	106 62	
		$469 13

JAMES ROBERTSON CO., LTD., MONTREAL, QUE.

45897—Steel plates	$293 30	
46006— "	233 24	
46903— "	421 32	
47232—Taps	10 82	
47893—Metals	2 05	
47974—Iron pig lead	146 25	
48216—Metals	29 34	
49241—Steel plates	139 03	
49210—Plates	82 52	
50357—Steel	14 79	
50018—Steel plates	15 20	
50314— "	173 28	
		$1,561 14

"RAILWAY AND LOCOMOTIVE ENGINEERING," NEW YORK, N.Y.

45671—Subscription, August, 1913, to July, 1914	$2 00	
		$2 00

S. H. RYAN, TRAINMASTER, NORTH BAY, ONT.

44387—Expenses, November, 1913	$25 50	
44510— " December, 1913	20 85	
45545— " January, 1914	18 85	
45882— " February, 1914	16 30	
46621— " March, 1914	20 75	
46978— " April, 1914	15 10	
47628— " May-June, 1914	33 25	
48657— " July, 1914	23 90	
48832— " August, 1914	21 45	
50155— " September, 1914	21 75	
50082— " October, 1914	5 80	
		$223 50

JNO. ROBERTSON & SON, LTD., MONTREAL, QUE.

43905—Loss account, damage and shortage liquor, claim 6575..	$14 95	
49432— " shortage whiskey, claim 8356	34 58	
		$49 53

T. ROSS (MASTER MECHANIC), NORTH BAY, ONT.

45880—Expenses, January and February, 1914	$9 00	
47630— " April and May, 1914	25 70	
		$34 70

RATCLIFFE PAPER CO., LTD., TORONTO, ONT.

44337—Twine	$13 27	
44574— "	6 63	
45614— "	6 63	
46239— "	7 42	
47234— "	5 70	
47541— "	20 79	
48598— "	7 42	
49875— "	8 17	
		$76 03

RICHARDSON, BOND & WRIGHT, LTD., OWEN SOUND, ONT.

44640—Books	$64 25	
44886—Binders, etc.	76 15	
46000—Forms, books	163 50	
46899—Forms	6 00	
47238— "	14 50	
47889— "	37 25	
47978— " and binders	34 55	
49243— "	83 25	
49212—Books	104 75	
50355—Forms	96 75	
50020— "	36 90	
50316	22 70	
		$740 55

RICHARDS, WILCOX CANADIAN CO., LTD., LONDON, ONT.

46008—Track hangers, etc.	$1 14	
44728— " "	9 24	
		$10 38

ROCK ISLAND SOUTHERN RY., MONMOUTH, ILL.

46739—Car repairs, bill 3765, January, 1914	$3 23	
		$3 23

J. G. RAMSEY & CO., LTD., TORONTO, ONT.

45669—Lantern slides from negatives supplied	$11 97	
		$11 97

H. ROSE, NUSHKA, ONT.

46522—Ties	$47 40	
47731— "	23 40	
		$70 80

R. D. ROBERTSON, COBALT, ONT.

47009—Loss corn meal, account damage to bag, claim 8337	$ 66	
49334— " oats, account shortage in transit, claim 8235	30 03	
49703— " biscuits from carton, Feb. 26th, 1914	1 13	
49606— " potatoes, account pilfering in transit, claim 7358....	4 49	
		$36 31

ROUS & MANN, LIMITED, TORONTO, ONT.

45745—Copies Folder "B"	$36 00	
45946— " "	28 00	
47008—New drawing of Commissioners' names and engraving of same	7 50	
47553—Folder "B" time table covers, summer folders	764 00	
47654— " "B"	40 00	
48990— " "B"	25 00	
		$900 50

J. RUNGER, MATHESON, ONT.

46199—Ties	$75 81	
46522— "	247 71	
46522— "	38 35	
		$361 87

J. P. RANGER, NORTH TEMISKAMING, ONT.

45224—Loss account, damage to piano in transit	$25 00	
46141—Loss, hides damages account delay in transit	20 35	
		$45 35

F. C. RICHARDSON, IROQUOIS FALLS, ONT.

43826—Loss eleven pounds candy, pilfered in transit, claim 7623	$1 92	
		$1 92

R. W. RHODES, MATHESON, ONT.

48328—Donation re horse alleged killed, M.P. 204¼, May 28th, 1914	$25 00	
		$25 00

FRED. RADLEY, BRETHOUR P.O., ONT.

43669—Overcharge in freight, H. H. goods, claim 7299	$3 40	
		$3 40

RAILWAY TEXTBOOK PUB. CO., INC., CHICAGO, ILL.

43847—Copies of freight rates	$5 00	
		$5 00

J. A. ROSEBOROUGH, NORTH BAY, ONT.

44373—Work performed constructing sidewalks and repairs to station platform, certificate No. 1	$306 75	

A. J. REECE, ELK LAKE, ONT.

45129—For purchase Elk Lake Telegraph and Telephone as per bill of sale, Jan. 31st, 1914	$2,000 00	
45565—For amount of notes due favor of Strong Drug Co. and H. V. Harcourt	2,000 00	
45751—Balance on purchase Elk Lake Telegraph and Telephone Co. as per bill of sale Jan. 31st, 1913	315 43	
		$4,315 43

ROBERT RODHY, NORTH BAY, ONT.

43876—Donation re mercury found on R. of W., summer 1912....	$5 00	
		$5 00

WALTER H. RHODES, COCHRANE, ONT.

44132—Loss account, shortage on groceries, claim 7355	$2 30	
		$2 30

WM. RYAN, LIMITED, TORONTO, ONT.

44963—Loss onions burnt in Earlton fire, claim No. 7716 ..... $11 25 — $11 25

G. RANGER, TIMMINS, ONT.

45133—Fence posts ..... $50 50 — $50 50

I. RICE, COCHRANE, ONT.

45191—Loss account, shortage shoes, claim No. 7860 ..... $ 80 — $ 80

ADOLPH ROBERT, NORTH TEMISKAMING, QUE.

45226—Loss tea account, damage to box in transit, claim No. 8056 $2 09 — $2 09

FRANK ROBITAILLE, COBALT, ONT.

45228—Loss account, shortage one box H. H. goods in transit, claim 7204 ..... $3 00 — $3 00

RAVA & PINAFETTI, COBALT, ONT.

46232—Loss account, shortage groceries, claim 7568 ..... $3 90 — $3 90

ROSICKS & CHAMPAGNE, COBALT, ONT.

46258—Loss macaroni, account damage in transit, claim 7902.. $2 31 — $2 31

HUGH REILLY, OTTAWA, ONT.

45128—For S. ½ lot 1, con. 6, Barber, 6.1 acres ..... $160 00 — $160 00

SAMUEL ROSE, ENGLEHART, ONT.

47005—Loss maple syrup account damaged in transit, claim 7087 $4 50 — $4 50

FRED. REZE, IROQUOIS FALLS, ONT.

46269—Ties $106 07
46522— " 43 03
47220— " 52 75
47220— " ..... 23 00 — $224 85

P. RIVETT, WAH-TAY-BEG, ONT.

46522—Ties $50 09
46658— " ..... 24 05 — $74 14

RAILWAY MAIL CLERKS' ASSOCIATION, TORONTO, ONT.

46526—Advertising "Railway Mail Clerks' Review" ..... $15 00 — $15 00

RYRIE BROS., LIMITED, TORONTO, ONT.

47236—Safety buttons . . . . $45 00 — $45 00

RAILWAY GARDENING, SEWICKLEY, PA.

47353—Dues to annual meeting, 1914 ..... $2 00 — $2 00

RAND AVERY SUPPLY CO., BOSTON, MASS.

47897—Ticket punches ..... $30 00 — $30 00

F. E. RINGWOLD, TORONTO, ONT.

47400—Damage to baggage in transit, claim No. 8620 ..... $100 00 — $100 00

RAIL JOINT CO. OF CANADA, LTD., NEW YORK, N.Y.

47980—Rail joints . . . . $4,857 48 — $4,857 48

RITTENGER & MOTZ, BERLIN, ONT.

48431—Advertisement. Homeseekers' excursion ..... $4 20 — $4 20

THE RECORDER PRINTING CO., BROCKVILLE, ONT.

48433—Advertisement, Homeseekers' excursion ..... $2 40 — $2. 40

REFORMER PRINTING & PUBLISHING CO., LTD., OSHAWA, ONT.

48945—Advertisement, Homeseekers' excursion ..... $2 00 — $2 00

RECORD PRINTING CO., LTD., WINDSOR, ONT.

48501—Advertisement, Homeseekers' excursion ..... $5 00 — $5 00

J. S. ROBERTSON CO., LTD., TORONTO, ONT.

48607—Advertisement, Homeseekers' excursion ..... $2 25 — $2 25

J. ROSS ROBERTSON, EVENING TELEGRAM, TORONTO, ONT.

49035—Advertisement, Homeseekers' excursion ..... $4 50 — $4 50

RITTENGER & MOTZ, BERLINGER JOURNAL.

48815—Advertisement, Homeseekers' excursion ..... $4 20 — $4 20

BERLIN NEWS RECORD, BERLIN, ONT.

48817—Advertisement, Homeseekers' excursion ..... $2 50 — $2 50

THE REVIEW CO., BRIDGEBURG, ONT.

48819—Advertisement, Homeseekers' excursion ..... $0 97 — $0 97

THE REVIEW, HARRISTON, ONT.

48865—Advertisement, Homeseekers' excursion ..... $1 50 — $1 50

THE DAILY RECORD, NIAGARA FALLS, ONT.

48923—Advertisement, Homeseekers' excursion ..... $1 15 — $1 15

DANIEL RITZ, "NEW HAMBURG INDEPENDENT," NEW HAMBURG, ONT.

48297—Advertisement, Homeseekers' excursion ..... $2 00 — $2 00

REVIEW PRINTING CO., LTD., PETERBOROUGH.

48691—Advertisement, Homeseekers' excursion ..... $8 00 — $8 00

RENFREW JOURNAL, RENFREW, ONT.

48991—Advertisement, Homeseekers' excursion ..... $2 50 — $2 50

RAILWAY TRACK GAUGE CO., LTD., ST. HYACINTHE, QUE.

50310—Track gauge testing machine No. 403 ..... $35 00 — $35 00

SOUTHAM PRESS, LIMITED.

44401—Tickets	$45 00	
44403— "	44 75	
44448—Tariffs	25 35	
45059—Special local freight tariff No. 60	6 00	
44698—Tickets	26 45	
44940— "	87 75	
45727—Folders, wall time-tables	52 00	
45747—Tariffs, circulars . .	21 25	
45672—Copies of circular No. 181, time table No. 28, frt. tariff No. 62	143 75	
45948—Copies local and joint interdivision passenger tariff No. 31	7 75	
46014—Tickets . . .	135 40	
46483—Copies special local freight tariff No. 63	5 00	
46555—Copies tariff No. 64 . .	18 25	
46458—Bulletins "Safety First" . . .	19 00	
47012—Copies of supp. No. 5 to F.D. No. 49	10 00	
47250—	133 05	
47725—Printing booklets . .	55 00	
47905—Tickets . . .	347 80	
47748—Duplex pilgrimage coupons	21 75	
47796—Wall time-tables, copies pocket-folder "A"	74 00	
47998—Passes, tickets . .	29 80	
48298—Copies of time-table No. 29	86 50	
49251—Tickets	58 60	
48750—Printing tickets . .	223 60	
48998—Copies tariff F.D. 111 and division sheet No. 1 to T.F.D. 111	80 50	

SOUTHAM PRESS, LIMITED.—*Continued.*

50087—Copies supp. "A" to F.D. No. 115 and F.D. No. 115....	$34 25	
50205—Copies supp. No. 1 to F.D. No. 111	14 50	
49680—Books, rates of pay, and rules governing service	60 00	
50032—Tickets	55 05	
50328— "	206 25	
50342—Copies of tariff F.D. No. 119, div. sheet No. 1 to tariff F.D. No. 119, copies of tariff F.D. 120.....	36 00	
50363—1914 pass books	13 50	
		$2,177 85

SANTA FE REFRIGERATOR DESPATCH CO., TOPEKA, KANSAS.

46836—Car service balance, February, 1914.	$3 79	
47269— " " March, 1914	1 54	
48291— " " May, 1914	1 54	
48684— " " June, 1914	3 90	
49785— " " July, 1014	3 09	
49500— " " August, 1914	1 54	
50130— " " September, 1914	3 87	
		$19 27

THE JAMES SMART MFG. CO., BROCKVILLE, ONT.

44745—Hammers	$9 01	
45123— "	3 88	
46048—Pumps	38 88	
47543— "	49 93	
47982—Hammers	7 21	
48608— "	5 13	
		$114 04

SAFETY CAR HEATING & LIGHTING COMPANY, NEW YORK, N.Y.

44537—Mantles	$57 60	
45903—Gas mantles	84 30	
46010—Repairing supplies	121 35	
47238—Pipe fittings and gas mantles	286 50	
47921— " " " "	114 30	
49253—Globes, opal bowls	51 84	
49224—Mantles, opal bowls	93 20	
50361—Rubber washers, valves, thimbles	39 66	
		$848 75

STANDARD CHEMICAL CO., TORONTO, ONT.

44535—Charcoal	$19 77	
44894—Wood alcohol	29 35	
47254—Charcoal	8 16	
47913—Shellac, spirits, charcoal	31 60	
50028— " "	15 26	
		$104 14

J. A. SIMMERS, LTD., TORONTO, ONT.

46911—Seeds	$55 09	
49245— "	68	
49220—Plants	15 00	
		$70 77

ST. LOUIS & SAN FRANCISCO RAILROAD, ST. LOUIS, MO.

44569—Car repairs, bill Nos. 8204 and 109855, Aug., Sept., and Oct.	$8 44	
46007— " " " No. 10287, Aug. to Oct., 1913	26 24	
46650— " " " No. 17292, Oct., 1913, to Jan., 1914	7 01	
46946— " " " No. 19613, July, 1913, to Feb., 1914	11 08	

ST. LOUIS & SAN FRANCISCO RAILROAD, ST. LOUIS, MO.—*Continued.*

48077—Car repairs bill, No. 21871, February, 1914	$14 69	
47984— " " " No. 20242, January, 1914	470 94	
48118— " " " No. 24282, March, 1914	2 31	
49433— " " " No. 2740, May, 1914	60	
49435— " " " No. 26673, Sept., 1913, to April, 1914	47 81	
49778— " " " No. 31625, June, 1914	2 18	
		$591 30

JOHN B. SMITH & SONS, TORONTO, ONT.

49226—Cherry, 1¾" x 9"	$20 70	
		$20 70

SCLATER ASBESTOS CO., MONTREAL, QUE.

44696—Asbestos board	$220 50	
45911—Asbestos	37 00	
47915—Gaskets	4 25	
		$261 75

SHURLEY & DIETRICH, GALT, ONT.

44736—Handles, band saws	$8 57	
46309—Hand saws	8 28	
47907— " "	10 48	
47698— " "	7 52	
47996— " "	12 45	
49218— " "	5 40	
		$52 70

SPEERS BROS., GOWGANDA, ONT.

44223—Supplies furnished survey party	$58 17	
		$58 17

SMART-TURNER MACHINE CO., HAMILTON, ONT.

44484—Valve seats	$1 60	
46016—Repairs, parts for 10 x 6 x 12 Duplex pump	17 90	
		$19 50

ST. LOUIS SOUTH WESTERN RAILWAY OF TEXAS, TYLER, TEX.

44121—Car service balance, September, 1913	$9 40	
44362— " " " October, 1913	7 65	
45395— " " " November, 1913	8 55	
45484— " " " December, 1913	7 20	
46081— " repairs, bill No. 297, June, 1913	1 61	
48297— " service balance, May, 1914	1 35	
49352— " repairs, bill No. 497, June, 1914	2 55	
49789— " service balance, July, 1914	5 40	
		$43 71

SWIFT REFRIGERATOR LINE, CHICAGO, ILL.

44113—Car service balance, September, 1913	$20 29	
44360— " " " October, 1913	22 21	
45389— " " " November, 1913	12 66	
45478— " " " December, 1913	7 66	
46397— " " " January, 1914	1 26	
46834— " " " February, 1914	1 69	
		$65 77

STEPHENSON & SON, NEW LISKEARD, ONT.

43970—Advertising		lots for sale	$23 65
45166—	"	Temagami restaurant privileges	5 10
45340—	"	*re* reward *re* dynamite	2 30
46620—	"	house and lot, Cochrane, Ont.	3 20
47415—	"	"clearing Matheson"	4 20
47555—	"	unsold lots Cochrane	6 60
47792—	"	tender. lands New Ontario	6 30
48783—	"	installing hot water heating system	4 80
48996—	"	unsold lots Matheson	5 00
50427—	"	tender for mining lease	13 95
			$75 10

SMITH'S FALLS MALLEABLE CASTINGS CO., LTD., SMITH'S FALLS, ONT.

44732—Castings			$61 90
44890—	"		5 30
45909—	"		5 50
46913—	"		30 85
47256—	"		35 35
47986—	"		44 46
49249—	"		38 21
49230—	"		45 43
50367—	"		16 50
50036—	"		112 25
50322—	"		8 64
			$404 39

SOUTHERN RAILWAY, WASHINGTON, D.C.

44115—Car service		balance, September, 1913	$12 15
44563— "	repairs,	bill No. 26964	10 73
45391— "	service	balance, November, 1913	4 50
46077— "	repairs,	bill Nos. 2926, 2446, June to Nov. 17th, 1913	16 80
46741— "	"	bill No. 2846, Nov. to Dec., 1913	19 62
46654— "	"	bill No. 2120, Nov., 1913, to Jan. 12th, 1914.	6 77
47723— "	"	bill No. 2777, Oct., 1913; Jan., Feb., 1914 ..	23 19
48162— "	"	bill No. 2301, Oct., 1913; Feb., March, 1914..	11 04
49431— "	"	bill No. 2890, May, 1914	23 22
49008— "	"	bill Nos. 1751, 2296, June, July, 1914	65 86
			$193 88

SEABOARD AIR LINE, PORTSMOUTH, VA.

44117—Car service		balance, September, 1913	$9 45
44561— "	repairs,	bill No. 65307	14 93
45016— "	"	bill No. 66941, July to Oct., 1913	10 80
45480— "	service	balance, December, 1913	9 45
46075— "	repairs,	bill No. 68449, Feb. 15 to Nov. 8, 1913	5 66
46148— "	"	bill No. 69979, Nov. 24, 1913	2 23
46944— "	"	bill No. 72906, Feb., 1914	85
48075— "	"	bill No. 74485, Feb. and March, 1914	2 61
48122— "	"	bill No. 75861, October, March, 1914	5 12
48293— "	service	balance, May, 1914	2 70
49429— "	repairs,	bill No. 77406	75
49350— "	"	bill No. 79007	8 93
49787— "	service	balance, July, 1914	1 35
			$74 83

SOUTHERN PACIFIC RAILWAY CO., SAN FRANCISCO, CAL.

44119—Car service		balance, September, 1913	$4 05
44565— "	repairs,	bill No. 226567	2 31
45393— "	service	balance, November, 1913	5 85
45482— "	"	" December, 1913	2 70
46011— "	repairs,	bill No. 225742	8 05
46150— "	"	bill No. 230134	1 31

SOUTHERN PACIFIC RAILWAY CO., SAN FRANCISCO, CAL.—*Continued.*

46652—Car repairs, bill No. 236865, Jan., 1914	$2 28	
46948— " " bill No. 235190, Feb., 1914	30	
48073— " " bill No. 242261, Dec., 1913	1 20	
48295— " service balance, May, 1914	14 85	
48315—Ticket balance, May, 1914	45 12	
48686—Car service balance, June, 1914	4 05	
48712—Ticket balance, June, 1914	37 93	
49815— " " July, 1914	25	
49776—Car repairs, bill No. 251277	2 66	
		$132 91

W. SWITZER, AGENT, LATCHFORD, ONT.

43969—Expenses, October, 1913	$3 45	
44767— " November, 1913	10 80	
45892— " February, 1914	3 00	
47667— " May, 1914	7 25	
48663— " July, 1914	6 65	
48836— " August, 1914	11 00	
50159— " September, 1914	11 95	
50374— " October, 1914	12 60	
		$66 70

STAR GROCERY, NORTH BAY, ONT.

43853—Supplies furnished car "Abitibi"	$25 62	
45344— " " " " and "Sir James"	17 63	
		$43 25

J. H. STILL MANUFACTURING CO., ST. THOMAS, ONT.

44743—Handles	$42 54	
44734— "	3 50	
45125— "	38 92	
45548— "	1 36	
46311— "	7 28	
46910— "	43 46	
47545— "	34 30	
47911— "	56 44	
47692— "	53 88	
47994— "	28 23	
48197— "	37 72	
48549— "	38 58	
48610— "	21 19	
49852— "	16 44	
		$423 84

SLAYMAKER LOCK MANUFACTURING CO., LANCASTER, PA.

44843—Keys	$6 48	
		$6 48

G. G. SMITH, EARLTON, ONT.

43909—Loss, shipment groceries burnt in Earlton fire June 30, claim No. 7624	$27 01	
44144—Loss, stove pipe in transit, claim No. 7624	2 33	
45195— " rice damaged in transit, claim No. 7908	72	
46147— " shortage cask vinegar in transit, claim No. 7487	11 44	
49705—Overcharge in weight on hay, claim No. 8663	2 22	
		$43 72

SOUTHERN CLASSIFICATION COMMISSION, ATLANTA, GA.

43978—Copies supplement Southern Classification, bill No. 423.	$0 78	
47359—Southern Classification No. 40 and sup. Nos. 16 and 17 to 39	1 59	
48779—copies of supplement Nos. 1 to 4 incl., bill No. 275	39	
		$2 76

A. W. SKINNER, ENGLEHART, ONT.

45244—Refund of demurrage charges	$13 00	
		$13 00

SAMSON CORDAGE WORKS, BOSTON, MASS.

45773—Signal cord	$21 53	
		$21 53

A. STEVENS, TEMAGAMI, ONT.

43671—Goods damaged, claim No. 6843	$9 96	
		$9 96

T. W. SQUIRE, TORONTO, ONT.

43851—Supplies furnished cars "Abitibi" and "Sir James"	$92 54	
44450— " " car "Sir James"	34 01	
45031— " " car "Sir James"	93 97	
45164— " " cars "Sir James" and "Abitibi"	24 62	
45342— " " car "Sir James"	40 26	
45950— " " car "Sir James"	46 74	
47355— " " car "Sir James"	37 80	
49559— " " car "Sir James"	34 37	
47729— " " car "Sir James"	1 27	
48775— " " car "Sir James"	49 37	
48777— " " car "Sir James"	39 41	
48752— " " car "Sir James"	119 95	
49812— " " car "Sir James"	55 20	
50434—Supplies furnished car "Sir James"	28 69	
		$698 20

ANGUS SINCLAIR, NORTH BAY, ONT.

50429—Meals furnished trainmen and enginemen at Couchon Pit, September, 1914	$24 00	
		$24 00

GEORGE SIMPSON, ENGLEHART, ONT.

50431—Supplies furnished T. & P. gang, Sept., 1914	$24 36	
		$24 36

SUTCLIFFE & NEELANDS, COBALT, ONT.

43936—Work performed on concrete platform, Cochrane, to November 15th, 1913, progress certificate No. 1	$910 80	
48496—Work performed on concrete platform, Cochrane, progress certificate No. 2 (final)	2,740 50	
		$3,651 30

WM. SCULLY, MONTREAL, QUE.

47248—Uniform buttons	$8 16	
47901—Conductors', trainmen's, station agents' and baggagemen's caps	146 85	
50024—Buttons	2 60	
		$157 61

L. Smith, Heaslip, Ont.

46577—Ties	$66 50	
46635— "	31 30	
		$97 80

Steel Company of Canada, Ltd., Toronto, Ont.

44339—Screws and bolts, Oct. and Nov., 1913	$312 52	
44541—Iron	157 13	
44691—Spikes	456 96	
44827—Iron	15 24	
44586—Bolts, nails and rivets	55 31	
44588—Ship spikes, screws and bolts	169 28	
44738—Steel	104 00	
45127—Screws and bolts	177 02	
45623—Spikes, screws, nuts, etc.	86 22	
45550—Bolts and screws	148 95	
45552—Washers	11 36	
45616—Tacks, nuts	50 15	
46241—Carriage bolts	10 31	
46012—Iron	228 37	
46307—Rivets, nuts, bolts	331 33	
46384—Bolts, rivets, nuts, etc.	75 99	
46919—Moulding nails, iron, steel	73 16	
46908—Steel, iron, etc.	1,039 96	
47040—Iron, rivets	7 78	
47252—Steel	17 82	
47133—Rivets	6 07	
47547—Machine bolts	39 48	
47899—Supplies as per statement attached to voucher ...../.	1,153 90	
47584—Wood screws, bolts, nuts	272 10	
47690—Screws, tacks, rivets, bolts, nuts, etc.	74 62	
47760—Bolts	62 10	
47988—Braces	59 00	
47990—Steel	1 85	
48218—Steel, iron	50 64	
48205—Machine bolts	59 69	
48591—Steel	803 94	
49261—Iron track, bolts, soft steel	556 33	
48600—Nails, tacks, washers, etc.	152 33	
48602—Machine bolts	34 46	
49228—Iron, steel, rivets	270 02	
49555—Bolts, steel, track spikes, screws	383 25	
49643—Nuts, rivets, bolts	221 81	
49879—Tacks	1 43	
50369—Iron, tie plates, steel	442 67	
49548—Nuts, bolts and washers	97 49	
49812—Iron bars, bolts, screws, cut tacks, spikes	653 29	
49890—Steel bars, iron bars, screws, nails	89 47	
50318—Iron, steel	75 66	
		$9,090 46

H. Sale, Master Mechanic's Dept., North Bay, Ont.

48838—Expenses, August, 1914	$2 50	
		$2 50

Wm. Simpson, Elk Lake, Ont.

50344—Rental of telephone service to Oct., 1914	$10 00	
		$10 00

L. Silver, Englehart, Ont.

45905—Wood	$18 00	
49255— "	27 00	
		$45 00

SCYTHES & CO., LTD., TORONTO, ONT.

44539—Cotton waste	$52 92	
44845—Duck	72 07	
44584— "	70 68	
45153— "	69 28	
44896—Colored waste	54 49	
46313—Duck	70 68	
47694— "	69 97	
49645— "	69 97	
49550— "	140 67	
		$670 73

SANDY VALLEY & ELKHORN RY. CO., BALTIMORE, MD.

46401—Car service balance, January, 1914	$22 50	
46838— " " " February, 1914	1 80	
48688— " " " June, 1914	4 50	
49793— " " " July, 1914	5 40	
		$30 20

STOWELL MANUFACTURING & FOUNDRY CO., SOUTH MILWAUKEE, WIS.

44868—Door hangers	$7 50	
47917— " "	7 50	
		$15 00

FRANK SHUB, POTTSVILLE, ONT.

48562—Donation *re* cow alleged killed M.P. 30¾, Porcupine branch, Aug. 3rd, 1914	$25 00	
		$25 00

SHEET METAL PRODUCTS CO., LTD., TORONTO, ONT.

44341—Galv. iron stove pipes and elbows	$102 43	
44580—Pipe, etc.	26 41	
44582—Lanterns	6 86	
44694—Galv. pails	13 23	
45121—Sheet iron, cups, etc.	41 84	
45546—Lanterns	42 92	
45618—Cans, Canada plate	17 00	
46386—Cans, etc.	9 05	
46915—Tinware	16 19	
47549—Oil cans, sheet iron	44 77	
47909—Drinking cups	2 07	
47696—Fire buckets	12 80	
48207—Pails, lanterns, fire buckets	25 85	
48593—Oil cans, galv. iron, pails	65 85	
48604—Oil cans, dust pans, etc.	6 37	
48606—Oil cans, cups, lanterns	24 60	
49850—Coal hods	3 73	
		$461 97

JAS. SINTON, ENGINEERING DEPT., NORTH BAY, ONT.

43947—Expenses, October, 1913	$18 05	
44711— " November, 1913	5 45	
44772— " December, 1913	10 95	
45555— " January, 1914	5 90	
45588— " February, 1914	7 75	
46623— " March, 1914	7 25	
47045— " April, 1914	4 45	
47665— " May and June, 1914	5 75	
		$65 55

AGENT T. & N. O. RY., SOUTH PORCUPINE STATION, ONT.

43749—Overcharge in weight machinery, claim No. 7385	$1 80
46169—Outstanding account, error in omitting to insert stop off, claim No. 8183	10 00

AGENT T. & N. O. RY., SOUTH PORCUPINE STATION, ONT.—*Continued.*

46171—Outstanding account, shipment short, claim No. 8166.....	$1 72	
49925—Amount paid Cook and Mitchell for professional services rendered *re* O'Connell vs. Flegg, Cochrane, claim No. 9065	25 00	
49618—Outstanding account demurrage, assessed in error	4 00	
49620— " " claim No. 7380	8 49	
48141— " " shipment short, claim No. 7469....	70	
		$51 71

ST. LOUIS SOUTHWESTERN RY. CO., ST. LOUIS, MO.

44895—Car repairs, bill No. 483	$10 54	
		$10 54

SPECTATOR PRINTING CO., LTD., HAMILTON, ONT.

45168—Advertisement	$20 00	
		$20 00

SWEDISH STEEL & IMPORTING CO., MONTREAL, QUE.

46917—Steel	$42 08	
47244— "	3 58	
50030—Iron	24 75	
		$70 41

C. STEPHENS & CO., LTD., COLLINGWOOD, ONT.

45092—Refund of freight paid, Cochrane to Porcupine, claim No. 7978	$1 29	
		$1 29

G. SIMPSON, LINEMAN, ENGLEHART, ONT.

43967—Expenses, October, 1913	$11 45	
44224— " November, 1913	15 05	
44774— " December, 1913	10 55	
45557— " January, 1914	11 45	
45886— " February, 1914	6 50	
46984— " March, 1914	9 70	
47499— " May, 1914	21 55	
48246— " June, 1914	20 60	
48659— " July, 1914	12 80	
48781—Disbursements for camp supplies, July, 1914	38 91	
49901—Expenses, August, 1914	112 56	
50163— " September, 1914	7 50	
50378— " October, 1914	17 45	
		$296 07

SHERWOOD & SHERWOOD, SUDBURY, ONT.

48872—Work performed on buildings, August, 1914	$5,259 48	
49552— " " " " Sept., 1914	6,503 55	
50202— " " " " Oct., 1914	3,954 39	
48551—Labor and material supplied in construction of various stations and section houses, progress certificate No. 1	9,711 46	
		$25,428 88

B. F. SMITH, ELECTRICIAN, NORTH BAY, ONT.

43945—Expenses, October, 1913	$13 05	
44222— " November, 1913	12 10	
45549— " December, 1913; January, 1914	32 70	
45890— " February, 1914	4 40	
46625— " March, 1914	8 50	
46982— " April, 1914	6 55	
47636— " May, 1914	9 55	

B F. Smith, Electrician, North Bay, Ont.—*Continued.*

48834—Expenses, June, July and August, 1914	$35 35	
50157— " September, 1914	4 50	
50084—	17 35	
		$144 05

Jas. Simpson (The Industrial Banner), Toronto, Ont.

43934—Advertisement, special number of the Industrial Banner, 1913	$24 00	
		$24 00

Stoddard Bros., North Bay, Ont.

47240—Bread and butter	$2 59	
47992—Groceries	18 95	
		$21 54

A. Sigouin, Nushka, Ont.

44831—Ties	$90 30	
44831—Switch sets	27 22	
44831— " "	24 03	
46199—Ties	28 20	
47731— "	159 78	
48184— "	14 50	
48184— "	80 50	
		$424 53

Sampson Cordage Works, Boston, Mass.

49247—Signal cord	$21 52	
		$21 52

Sheet Metal Products Co. of Canada, Toronto, Ont.

50034—Stove pipes, elbows	$8 58	
		$8 58

Arthur Smith, Iroquois Falls, Ont.

44831—Ties	$79 62	
44831— "	34 71	
		$114 33

Standard Chemical, Iron & Lumber Co., Ltd., Toronto, Ont.

49259—Wood alcohol	$15 99	
		$15 99

W. Sweetnam, Special Constable, North Bay, Ont.

49903—Expenses, September, 1914	$20 20	
		$20 20

Julian Sale Leather Goods Co., Ltd., Toronto, Ont.

44259—Suit case straps	$0 70	
		$0 70

L. Soper, Englehart, Ont.

44967—Loss, account damage to chair, claim No. 7715	$0 78	
45230— " " shortage baskets, claim No. 7709	1 15	
45907—Closet	18 00	
49434—Loss, account damage to coffin in transit, claim No. 8792.	1 25	
		$21 18

PATRICK SAMPSON, IROQUOIS FALLS, ONT.

44831—Ties	$95 46	
46522— "	44 39	
47220— "	26 70	
		$166 55

SUDBURY BREWING & MALTING CO., LTD., SUDBURY, ONT.

49709—Loss, lager, cases and bottles, damaged and destroyed by fire Englehart, Feb. 24th, 1914	$37 90	
		$37 90

SUDBURY STAR PUBLISHERS, LTD., SUDBURY, ONT.

44375—Subscription, Nov., 1913, to Nov., 1914	$1 50	
		$1 50

A. J. SMITH, RELIEVING AGENT, NORTH BAY, ONT.

48132—Expenses, June, 1914	$14 00	
		$14 00

J. H. SCHMALLBACK, RELIEVING AGENT, NORTH BAY, ONT.

48134—Expenses, June, 1914	$14 00	
49907— " August, 1914	14 00	
50165— " September, 1914	14 00	
		$42 00

AGENT T. & N. O. RY., SCHUMACHER STATION, ONT.

44965—Outstanding account, shipment short, claim No. 7833	$1 25	
		$1 25

CHAS. STAFF, TIMMINS, ONT.

48540—Cost of repairs to stove damaged in transit, claim No. 8284	$4 75	
		$4 75

SPOKANE, PORTLAND & SEATTLE RY., PORTLAND, ORE.

46009—Car repairs, bill No. 36107, Oct. 29, March 17-19, 1913	$0 83	
46079—Car repairs, bill No. 37175, Nov. 19, 1912	5 69	
48317—Ticket balance, May, 1914	7 83	
		$14 35

SAN ANTONIO, UVALDE & GULF R.R., ST. LOUIS, MO.

46013—Car repairs, bill No. 1346	$3 72	
		$3 72

SAN ANTONIO & ARKANSAS PASS RY., SAN ANTONIO, TEX.

49437—Car repairs, bill No. 32185, June, 1914	$1 56	
		$1 56

W. J. SPELLER, HOMER SIDING, ONT.

46211—For w. ½ lot 6, con. 4, Taylor, 3.27 acres	$200 00	
48589—Work performed stumping wye at Porquis Jct.	90 00	
48536—Stumping and plowing wye at Porquis Jct., August, 1914, progress certificate No. 2 (final)	185 00	
		$475 00

SAN PEDRO, LOS ANGELES & SALT LAKE R.R., LOS ANGELES, CAL.

45397—Car service balance, November, 1913	$1 80	
46399— " " " January, 1914	8 55	
44364— " " " October, 1913	90	
49791— " " " July, 1914	1 80	
		$13 05

W. J. STROTHERS, PORQUIS JUNCTION, ONT.

49707—Loss, account shortage case cream, claim No. 8602	$3 90	
		$3 90

STEEL EQUIPMENT COMPANY, LTD., OTTAWA, ONT.

44399—Transfer cases	$12 00	
44892—Ottawa files	9 00	
44942—Binding cases	12 00	
45621—Binding cases	12 00	
46050—Transfer cases	12 00	
47903—Binding cases	26 25	
49257—Ottawa files	3 00	
49222—Ottawa files	9 00	
40365—Transfer cases	24 00	
50324—Transfer cases	12 75	
		$132 00

ST. LOUIS, BROWNSVILLE & MEXICO RY., KINGSVILLE, TEXAS.

44567—Car repairs, bill No. 965, Sept., 1913	$0 91	
46743— " " 2191, Oct., 1913	34	
50001— " " 4109, Feb.-March, 1914	12 62	
		$13 87

G. SWINDLEHURST, HANBURY, P.Q.

44233—Fence Poles	$12 28	
		$12 28

ROBERT SWAN, SPECIAL OFFICER, NORTH BAY, ONT.

44096—Expenses, November, 1913	$25 00	
44512— " December, 1913	25 00	
45551— " January, 1914	25 50	
45888— " February, 1914	27 00	
46575— " March, 1914	30 00	
46980— " April, 1914	22 00	
47501— " May, 1914	18 00	
48130— " June, 1914	25 00	
48661— " July, 1914	31 25	
48840— " August, 1914	35 75	
49872— " October, 1914	29 50	
49905— " September, 1914	26 00	
		$320 00

E. E. SHEPPARD, CONDUCTOR, NORTH BAY, ONT.

44389—Expenses, October and November, 1913	$17 50	
		$17 50

C. SOMERVILLE, IROQUOIS FALLS, ONT.

44225—Bread supplied, linemen	$3 92	
		$3 92

ALLEN SMITH, CHARLTON, ONT.

44831—Telegraph poles and piles	$164 75	
47443— " " "	124 90	
		$289 65

M. SILVERSTINE, COCHRANE, ONT.

43727—Loss account, one pair boots, pilfered, with connections, claim No. 7073	$2 65	
		$2 65

L. SUSMAN, ENGLEHART, ONT.

43753—For donation re steer alleged killed M.P. 140, August 26th, 1913	$20 00	
		$20 00

C. SORENSON, SISEKINIKA LAKE, ONT.

43907—Loss, sack and blanket, with connections, claim No. 7639	$8 00	
		$8 00

SINGER SEWING MACHINE CO., ELIZABETHPORT, N.J.

43911—Loss, sewing machine, destroyed in Earlton fire, June 30th, 1913	$19 14	
		$19 14

STENSON BROS., SOUTH PORCUPINE, ONT.

44138—Damage to clocks in transit, claim No. 7485	$6 37	
46249—Loss, plaster paris account damage to keg, claim No. 7497	1 29	
		$7 66

SHANTYMEN'S CHRISTIAN ASSOCIATION, TORONTO, ONT.

44140—Refund of 50% frt. charges account, material for home	$8 28	
		$8 28

SUDBURY BREWING & MALTING CO., LTD., SUDBURY, ONT.

44142—Loss account, damage to beer by fire in North Bay Jct. yard, Feb. 5th, 1913	$338 40	
		$338 40

SMITH & PROCTOR, HALIFAX, N.S.

45193—Loss, one case butter, account shortage, claim No. 6037	$15 84	
		$15 84

SKY BROS., SOUTH PORCUPINE, ONT.

46145—Loss, five pair corsets, shortage from case, claim No. 7507	$6 40	
		$6 40

SHANKS & LEPAGE, COBALT, ONT.

46151—Loss account, damage to barber's chair in transit, claim No. 7879	$2 25	
		$2 25

JOHN STOKES. COBALT, ONT.

45142—Loss, damage to clock and pictures, claim No. 7884	$5 00	
		$5 00

SCHOOL SECTION NO. 3 CLERGUE, PORQUIS JCT., ONT.

48420—Donation	$25 00	
		$25 00

WILLIAM STACK, ELK LAKE, ONT.

45650—Team and teamster, Elk Lake to Gowganda, telephone line	$17 00	
		$17 00

STEWART & WOOD, TORONTO, ONT.

44747—Glass	$69 08	
44590— "	107 25	
44592— "	27 71	
45554— "	99 34	
46633— "	58 66	
		$362 04

ST. LOUIS & HANNIBAL RY., HANNIBAL, MO.

44893—Car repairs, bill No. 8372	$1 32	
45486—Car service balance, December, 1913	2 70	
		$4 02

SPOKANE INTERNATIONAL RAILWAY, SPOKANE, WASH.

45018—Car repairs, bill No. 11805, Sept., 1913	$1 84	
		$1 84

GEORGE SPEIRAN, IROQUOIS FALLS, ONT.

45449—Ties	$70 62	
45570— "	53 80	
45570— "	34 85	
46635— "	85 28	
46635— "	26 75	
		$271 30

STATEN ISLAND RAPID TRANSIT CO., NEW YORK, N.Y.

48079—Car repairs, bill No. 3/199, February, 1914	$0 49	
48120— " " 1/193, December, 1914	47	
		$0 96

THE ST. MARY'S ARGUS, ST. MARY'S, ONT.

49848—Advertising, Homeseekers' excursion	$2 00	
		$2 00

DANIEL SCHWEZ, IROQUOIS FALLS, ONT.

45449—Ties	$73 76	
45449— "	59 20	
46749— "	113 68	
47220— "	119 45	
		$366 09

SMITH, FASSETT & CO., NORTH TONAWANDA, N.Y.

50326—Dry slabs	$10 69	
		$10 69

J. Stone & Co., Ltd., Deptford, London, S.E.

45673—One set Stone's electric lighting apparatus for car "Sir James"	$1,125 45	
46909—Electrical material	7 55	
48498—Lighting equipment	12,756 65	
50026—Electrical material	121 00	
50320—Electrical material	1,143 20	
		$15,153 85

J. Snoddam, North Bay, Ont.

45553—Expenses, December, 1913	$3 40	
		$3 40

W. Silverthorne, Earlton, Ont.

45144—Ties	$128 60	
46199— "	62 80	
46522— "	99 40	
		$290 80

W. C. Stahle Co., Pittsburg, Pa.

47919—Wage tables	$5 36	
		$5 36

P. Shainehoft, Englehart, Ont.

47923—Bread	$2 80	
		$2 80

R. E. Stevens, Toronto, Ont.

47346—Loss account, depreciation on box clothing delayed account of shortage, claim 8442	$10 00	
		$10 00

Agent T. & N. O. Ry., Schumacher, Ont.

49515—Outstanding account, shipment short, claim 8354	$1 61	
49537— " " " " " 8351	1 13	
49539— " " " " " 8757	21	
		$2 95

Spanish River Pulp & Paper Mills, Ltd., Toronto, Ont.

45232—Siding rebate, Kenney siding, November, 1913	$6 00	
45608— " " " " February, 1914	10 00	
48369— " " " " March, April, May, 1914	16 00	
		$32 00

M. Seguin, Nushka, Ont.

46199—Ties	$93 40	
47443— "	45 75	
48188— "	26 79	
48609— "	179 10	
		$345 04

Emil Shewer, Iroquois Falls, Ont.

46269—Ties	$7 32	
46635— "	3 50	
		$10 82

W. L. Spencer, Earlton, Ont.

49509—Overcharge in weight on hay, claim 8259	$6 13	
		$6 13

Sanderson, Pearcy & Co., Ltd., Toronto, Ont.

46907—Paints	$70 30	
		$70 30

P. Sage, Long Point, Ont.

47361—Repairs to T. & N. O. telegraph line	$2 00	
		$2 00

Norman J. Sullivan, Lineman, Elk Lake, Ont.

45884—Expenses, February, 1914	$4 50	
47047— " May, 1914	1 25	
47634— " May, 1914	14 00	
48681— " June, 1914	13 00	
50161— " August-September, 1914	17 15	
48842— " July, 1914	19 60	
50376— " October, 1914	12 25	
		$52 20

Station List Publishing Co., St. Louis, Mo.

46485—Supplements to list No. 11	$3 59	
47557— " "	1 33	
47794—Station list No. 12	2 00	
48994—Supplement to I.C.C., No. 1047	1 62	
		$8 54

Ben Swaile, Matheson, Ont.

46522—Ties	$61 11	
46882— "	30 75	
		$91 86

George H. Schefter, "Mildmay Gazette," Mildmay, Ont.

50091—Advertisement, homeseekers' excursion	$1 00	
		$1 00

Springhill Farm Dairy, North Bay, Ont.

47242—Milk and cream for private car "Abitibi"	$1 08	
		$1 08

"The Strathroy Despatch," Strathroy, Ont.

50089—Advertisement, homeseekers' excursion	$3 00	
		$3 00

J. Spaulding & Sons Co., Toawanda, N.Y.

47246—Fibre	$4 15	
		$4 15

School Section No. 3, Clergue, Porquis Jct., Ont.

47027—Donation to public school, Porquis Jct.	$25 00	
		$25 00

J. W. Sanderson, Cobalt, Ont.

47105—Damage to fruit, claim No. 5572	$88 40	
		$88 40

DR. J. C. SMITH, PETER BROWN CREEK, ONT.

47139—For professional services rendered Messrs. Murray and Allen *re* injuries alleged received at M.P. 96½, train No. 47. March, 1914 ..... $15 00 — $15 00

J. H. STITT, ST. THOMAS, ONT.

47357—Room and board supplied N. Schraw, J. A. Smith, Jno. McKenny, April 17th to 20th, 1914 ..... $3 60 — $3 60

"STAR PRINTING COMPANY," DUNDAS, ONT.

48505—Advertisement, homeseekers' excursion ..... $1 50 — $1 50

"THE SUN," ORANGEVILLE, ONT.

48939—Advertisement, homeseekers' excursion ..... $6 20 — $6 20

"ST. MARY'S JOURNAL," ST. MARY'S, ONT.

48900—Advertisement, homeseekers' excursion ..... $2 00 — $2 00

"THE STAYNER SUN," STAYNER, ONT.

49003—Advertisement, homeseekers' excursion ..... $ 75 — $ 75

"THE SIMCOE REFORMER," SIMCOE, ONT.

49007—Advertisement, homeseekers' excursion ..... $3 00 — $3 00

"THE STANDARD," BLYTH, ONT.

48391—Advertisement, homeseekers' excursion ..... $1 50 — $1 50

"THE STREETSVILLE REVIEW," STREETSVILLE, ONT.

48997—Advertisement, homeseekers' excursion ..... $1 20 — $1 20

"SEAFORTH NEWS," SEAFORTH, ONT.

48898—Advertisement, homeseekers' excursion ..... $ 75 — $ 75

"STANDARD PRINTING AND PUBLISHING CO.," FOREST, ONT.

48849—Advertisement, homeseekers' excursion ..... $2 40 — $2 40

"THE STRATFORD DAILY HERALD," STRATFORD, ONT.

49017—Advertisement, homeseekers' excursion ..... $2 70 — $2 70

"THE STAR AND VIDETTE," GRAND VALLEY, ONT.

48855—Advertisement, homeseekers' excursion ..... $2 00 — $2 00

"THE SENTINEL-REVIEW," WOODSTOCK, ONT.

49043—Advertisement, homeseekers' excursion	$2 50	
		$2 50

"SPECTATOR" PRINTING CO., HAMILTON, ONT.

48869—Advertisement, homeseekers' excursion	$10 00	
		$10 00

"STANDARD" PRINTING & PUBLISHING CO., KINGSTON, ONT.

48875—Advertisement, homeseekers' excursion	$4 00	
		$4 00

"STANDARD" PRINTING CO., MARKDALE, ONT.

48897—Advertisement, homeseekers' excursion	$1 00	
		$1 00

TEMISKAMING TELEPHONE COMPANY, LTD., NEW LISKEARD, ONT.

43857—Rental of phone, Kerr Lake Siding, from Nov. 1st to May 1st, 1913	$53 50	
44231—Changing crossing at M.P. 104	5 85	
44452—Rental of phone, January to July, 1914	71 00	
45067—Rental of phone No. 183, Dec., 1913, to May, 1914	5 00	
45094—Loss account, damage to conduit, claim No. 7582	9 70	
45954—Telephone service, E. M. Goodman, rental telegraph office, Haileybury, Oct. 2nd to Dec. 31, 1913	25 30	
46557—Rent of telephone, at Haileybury freight office and Cobalt office to Nov., 1914	37 50	
47016—Rent of telephone, at Kerr Lake, to Nov., 1914, and Cobalt freight shed	53 50	
47781—Rent of telephone No. 183, June 1st to Dec. 1st, 1914	5 00	
48136—Rent of telephones 16A and 16B-75A, to Jan. 1st, 1915	45 00	
48300—Rent of telephone in mining engineer's office	26 00	
48760—Phone material	412 41	
48868—Telegraph poles	20 70	
50093—Telephone rental, freight office, Haileybury, Oct., 1914, to April, 1915	15 00	
49004—Telephone rental, telegraph office, Haileybury, Sept. 1st to March, 1915	17 50	
49684—Telephone rental, freight office and telegraph office, Cobalt, Oct. 22nd, 1914	51 00	
		$853 96

THISTLE RUBBER TYPE FOUNDRY, SOMBRA, ONT.

44642—Rubber stamps	$0 75	
44948— " "	2 05	
48144— " "	6 00	
49277— " "	1 95	
49236— " "	50	
50038— " "	2 25	
50350— " "	15	
		$13 65

"THE TORONTO WORLD," TORONTO, ONT.

44969—Refund of 50% freight charges on portable house, claim No. 7802	$22 08	
		$22 08

TALLMAN BRASS & METAL CO., HAMILTON, ONT.

44543—Brass	$10 60	
46925—Copper rod and brass rod	34 40	
47096—Hard drawn copper rod	34 58	
47927—Copper rod	12 75	
49234—Metals	54 52	
50377—Copper rod	7 32	
50352—Copper rod	7 56	
		$161 73

TIME TABLE DISTRIBUTING COMPANY OF CANADA, LTD., ST. JOHN, N.B.

44279—Distributing time tables, November, 1913	$15 00	
44458— " " December, 1913	15 00	
45675— " " January, 1914	15 00	
45346— " " February, 1914	15 00	
46487— " " March, 1914	15 00	
46374— " " April, 1914	15 00	
47417— " " May, 1914	15 00	
47658— " " June, 1914	15 00	
49000— " " July, 1914	15 00	
49849— " " August, 1914	15 00	
49682— " " September and October, 1914	30 00	
		$180 00

TAYLOR & ARNOLD, LTD., MONTREAL, QUE.

45915—Janney Locks	$24 00	
47929—Janney locks and Melrose knuckles	35 80	
50040—Janney locks	26 25	
		$86 05

TOMIKO LUMBER CO., TOMIKO, ONT.

49263—Rail plates, etc	$454 14	
50173—Slabs, refund, telephone rental, paid twice	52 20	
		$506 34

TEMPLETON, KINLY & CO., LTD., TORONTO, ONT.

44849—Jacks	$121 50	
74264— "	121 50	
50379— "	43 20	
		$286 20

TORONTO WEEKLY RAILWAY & STEAMBOAT GUIDE, TORONTO, ONT.

47014—Subscription to guide, April, 1914, to Oct., 1914	$2 60	
49858— " " Nov., 1914, to April, 1914	2 60	
		$5 20

TRAVELLERS' INSURANCE CO., HARTFORD, CONN.

44143—Ticket balance, September, 1913	$3 03	
44396— " Oct., 1913	1 10	
45433— " Nov., 1913	1 38	
45516— " Dec., 1913	3 03	
46435— " Jan., 1914	2 20	
46872— " Feb., 1914	1 10	
47305— " March, 1914	5 91	
47544— " April, 1914	4 13	
48319— " May, 1914	41	
48714— " June, 1914	4 68	
49817— " July, 1914	1 79	
49518— " August, 1914	2 89	
50146— " September, 1914	1 38	
		$33 03

THOMSON, TILLEY & JOHNSTON, TORONTO, ONT.

43687—For advance on account, *re* Waldron *vs.* T. & N. O. Ry.	$500 00	
43761—Fee as counsel, November, 1913	400 00	
44149—For service and expenses, *re* Waldron *vs.* T. & N. O. Ry. Commission	337 60	
43910—Fee as counsel, December, 1913	400 00	
44907— " " January, 1914	400 00	
45828— " " February, 1914	400 00	
46225— " " March, 1914	400 00	
46684— " " April, 1914	400 00	
46971— " " May, 1914	400 00	
47143—For amount of settlement, *re* alleged injuries, T. L. Smith, deceased, North Bay Jct. yard, Jan. 21st, 1914	2,500 00	
47314—Fee as counsel, June, 1914	400 00	
47446—For services rendered, *re* T. L. Smith *vs.* T. & N. O. Ry.	50 00	
48163—Fee as counsel, July, 1914	400 00	
48316— " " August, 1914	400 00	
49587— " " September, 1914	400 00	
49404— " " October, 1914	400 00	
		$8,187 60

TRANSCONTINENTAL FREIGHT BUREAU, CHICAGO, ILL.

4398—Tariffs supplied	$3 58	
44456— " "	3 06	
46495— " "	3 57	
46396— " "	5 13	
47427— " "	1 14	
47783— " "	1 13	
48789— " "	1 81	
50207— " "	1 37	
50099— " "	3 69	
		$24 48

TELFER BROS., LTD., COLLINGWOOD, ONT.

47013—Refund of freight paid on onions, claim No. 6558	$23 22	
		$23 22

T. & N. O. RY. TELEGRAPH, NORTH BAY, ONT.

44460—Message, Nov. 5th, 1913	$0 26	
45356— " Jan. 7th, 1914	33	
46489— " Feb. 20th, 1914	27	
47018— " March, 1914	50	
47425— " April, 1914	81	
48791— " July, 1914	1 18	
49024— " August, 1914	1 06	
50436— " Sept., 1914	52	
		$5 03

TORONTO SANITARY TOWEL SUPPLY CO., TORONTO, ONT.

44281—Towel supply, November, 1913	$1 00	
44454— " " December, 1913	1 00	
45174— " " January and February, 1914	2 00	
46317— " " March, 1914	1 00	
46622— " " April, 1914	1 00	
47419— " " May, 1914	1 00	
47656— " " June, 1914	1 00	
48553— " " July, 1914	1 00	
48762— " " August, 1914	1 00	
49631— " " September, 1914	1 00	
50204— " " October, 1914	1 00	
		$12 00

TORONTO, HAMILTON & BUFFALO RY. CO., HAMILTON, ONT.

44573—Car repairs, bill No. 5269	$ 90	
44394—Ticket balance, October, 1913	5 86	
45431—Ticket balance, October and November, 1913	6 18	
45044—Car repairs, bill No. 5599	2 15	
45514—Ticket balance, December, 1913	4 58	
45181—Loss account, damage to buggy, claim No. 7450	5 13	
46087—Car repairs, bill No. 5046	13 88	
46160—Car repairs, bill 6666	92	
46870—Ticket balance, February, 1914	5 50	
47303—Ticket balance, March, 1914	4 40	
48083—Car repairs, bill 6631	43	
48564—Car repairs, bill 7362	3 01	
50007—Car repairs, bill 7476	41	
49516—Ticket balance, August, 1914	1 30	
		$54 65

GEORGE TAYLOR HARDWARE CO., COBALT, ONT.

43731—Overcharge in rate, iron service boxed, claim No. 7273	$3 72	
44227—Night lock for ticket office door, New Liskeard	2 50	
44024—Damage to baths in transit, claim No. 7211	19 25	
44026—Loss account, plate glass broken in transit, claim No. 6665	32 00	
44148—Loss account, shortage fittings in transit, No. 6949	36 96	
44150—Loss account, shortage iron in transit, claim 6620	2 64	
46052—Door lock	2 80	
46318—Loss account, plate glass broken in transit, claim 7567	24 32	
47348— " " shortage one bag oyster shells, claim 8294	1 00	
47416— " " damage to block iron, claim 7456	9 25	
48123— " " shortage one bar steel, claim 8258	3 01	
48125— " " shortage oil from barrels, claim 6834	17 48	
48384— " " damage to tile and sewer pipe in transit, claim 8369	5 44	
49513— " " shortage one carboy acid, claim 8354	4 96	
49613—Overcharge in rate on caustic soda, claim 7371	4 44	
50095—Guns and ammunition for special officers	55 70	
49436—Loss account, damage to stoves, claim 8175	20 00	
49608—Settled of claims No. 7552-7955	19 85	
		$265 32

TOLEDO & OHIO CENTRAL RY. CO., TOLEDO, OHIO.

46162—Car repairs, bill No. 12240, November, 1913	$2 03	
		$2 03

TRUNK LINE ASSOCIATION, NEW YORK, N.Y.

43982—Copies of supplement to official classification	$19 64	
45061— " " No. 1 to official classification No. 41	54	
45729— " " No. 2 to official classification No. 41	44	
45952— " " No. 4 and 6 to official classification No. 40 and 41	98	
47563— " " No. 41 and 42	19 47	
48787— " " No. 1 and 2 to official classification No. 42	44	
49847— " " No. 3 to official classification No. 42	2 52	
		$44 03

J. & J. TAYLOR, LTD., TORONTO, ONT.

44847—Safe	$170 00	
49271— "	170 00	
		$340 00

TORONTO ELECTRIC LIGHT CO., LTD., TORONTO, ONT.

44229—Electric current, Oct. 22nd to Nov. 20th, 1913		$7 83	
44206— " " Nov. 20th to Dec. 20th, 1913		7 97	
45155— " " Dec. 20th to Jan. 20th, 1914		7 47	
45170— " " Jan. 24th to Feb. 19th, 1914		4 39	
46493— " " March 20th to April 20th, 1914		2 50	
46392— " " May 19th to June 18th, 1914		2 50	
47363— " " April 20th to May 19th, 1914		2 50	
47660— " " May 19th to June 18th, 1914		2 50	
48555— " " June 18th to July 18th, 1914		3 31	
48764— " " July 18th to Sept. 18th, 1914		9 07	
49554— " " Sept. 18th to Oct. 17th, 1914		5 75	
			$55 79

TEXAS & PACIFIC RAILWAY, DALLAS, TEXAS.

44366—Car service balance, October, 1913	$2 70	
46952—Repairs to cars, bill D-2564, January	1 20	
48087—Car repairs, bill D-3672	14 48	
47522—Car service balance, April, 1914	4 95	
48690—Car service balance, June, 1914	90	
49356—Car repairs, bill D-6603	36	
49782—Car repairs, bill D-8637	84	
		$25 43

TEMISKAMING & NORTHERN ONTARIO RY., OPERATION ACCOUNT.

43719—Undercharge in freight, caustic soda, claim 7444	$ 21	
45753—Amount due from A. J. Reece for unexpired rentals *re* purchase Elk Lake, Gowganda T. & T. Co.	334 57	
45612—Undercharge in freight on shipment oils, claim 7118	6 50	
48145— " " poles, claim 6529	1 35	
48434— " " lumber and silver ore, claim 7378, 8000	16 25	
		$358 88

TOLEDO, ST. LOUIS & WESTERN RAILROAD, CHICAGO, ILL.

45399—Car service balance, November, 1913	$13 05	
46085—Car repairs, bill 83358	1 35	
46403—Car service balance, January, 1914	1 80	
48166—Car repairs, bill 85985, April-January, 1914	25 50	
49441— " " bill 86515, May, 1914	10 47	
49786— " " bill 87911, June, 1914	50	
		$52 67

TREASURER OF ONTARIO, TORONTO, ONT.

45130—Lands for right of way, Porcupine, Iroquois Falls and Elk Lake branches	$666 27	
45520—For S. ½ lot 4, con. 5, Pacaud, 2.17 acres	2 17	
46181—For N. ½ lots 6 and 7, con. 6, Henwood Township, 133.1 acres	133 10	
46491—For N. ½ lot 11 and 12, con. 2, Carr, 1.86 acres	1 95	
46388—For N. ½ lot 6, con. 4, Taylor, 3.27 acres	3 27	
46390—For S. ½ lots 8 and 9, con. 6, Taylor, .98 acres	1 00	
46530—For fire ranging, seasons 1911-1912	5,000 00	
47075—Extra land required for station grounds at Wahtaybeag..	81	
49562—For proceeds from revenues, T. & N. O. Ry., year ended October 31st, 1914	225,000 00	
49856—Paper supplied for annual and mining engineer's reports	113 33	
		$230,921 90

TORONTO SILVER PLATE CO., TORONTO, ONT.

44545—Reflector replated and refinished	$5 75	
44946—Replating and refinishing reflectors	11 50	
46921—Replating reflectors	23 58	
47935—Replating and refinishing reflectors	11 50	
49375— " " "	28 00	
50373— " " "	11 50	
		$91 83

TRINITY & BRAZOS VALLEY RAILROAD, HOUSTON, TEX.

44575—Car repairs, No. 24597, April to June	$12 11	
45488—Car service balance, December, 1913	4 95	
46015—Car repairs, bill No. 25006, October, 1913	5 97	
46158—Car repairs, bill No. 25996, November, 1913	2 01	
46405—Car service balance, January, 1914	8 55	
50132—Car service balance, September, 1914	90	
		$34 49

AGENT T. & N. O. RY., THORNLOE STATION, ONT.

45114—Overcharge in rate, flour and feed, claim 7630	$4 13	
		$4 13

JOHN TAYLOR & CO., LTD., TORONTO, ONT.

44740—Soap	$44 00	
44944— "	17 00	
47933— "	39 00	
48140— "	18 00	
49269— "	18 00	
49232— "	43 50	
50375— "	13 50	
		$193 00

J. J. TURNER & SONS, PETERBORO, ONT.

46054—Cot	$3 83	
46923—Tent	36 34	
48000—Flag	2 63	
49267—Tents	45 82	
		$88 62

THE THOMAS COMPANY, NORTH BAY, ONT.

43989—Repairs to comparison clock, Cochrane Station	$3 00
44377—Watch inspection	9 00
44391—Expenses, November, 1913	5 50
44204—Repairing and cleaning clock for Earlton Station	2 00
45063—Watch inspections, Sept. 17th to Oct. 3rd, 1913	36 00
45503—Expenses, September and October, 1913	27 00
45561—Expenses, January, 1914	10 50
45348—Watch inspection and clock parts, January, 1914	19 00
45894—Expenses, February, 1914	8 00
45956—Repairs to clock at Matheson, Tomiko, Feb. 21st to 29th, 1914	19 00
46627—Expenses, March, 1914	8 85
46462—Wages of watch inspector, March 24th to 27th, 1914	12 00
47049—Expenses, April, 1914	8 85
47423—Time, watch inspector, April 21st to 24th, 1914	12 00
47503—Expenses, May, 1914	9 85
47661—Inspecting watches, May 18th to 21st, 1914	12 00
47638—Expenses, June, 1914	8 35
47798—Watch inspector, June 11th to 18th, 1914	12 00
48667—Expenses, July, 1914	9 25
49002—Watch inspection, four days, July, 1914	16 00
49909—Expenses, August and September, 1914	18 55

THE THOMAS COMPANY, NORTH BAY, ONT.—*Continued.*

50097—Watch inspection and installing clock at North Bay Jct...	$38 50	
49874—Expenses, October, 1914	9 85	
50206—Watch inspection, October, 1914	16 00	
		$331 05

THIEL DETECTIVE SERVICE CO., TORONTO, ONT.

46215—Services rendered Feb. 14th, 1912, to April 30th, 1913.....	$1,027 18	
46315—Refund on railroad fare, May to January, 1914	113 35	
46687—Refund on railroad fare, February, 1914	12 25	
48758—Services and expenses, March 31st, 1914, to July, 1914	489 55	
49851—Services and expenses, August 16th to 28th, 1914	20 85	
		$1,663 18

THORPE BROS., NEW LISKEARD, ONT.

43729—Loss account, chair broken, claim 7514	$ 75	
43915— " " glass broken in transit, claim 7429	50	
43828— " " damage to table leaves in transit, claim 7404	75	
44028— " " chairs broken, claim 7428	1 80	
44971— " " rocker runner, claim 7765	30	
44973— " " rocker legs broken, claim 7768	70	
46153— " " damage to chairs in transit, claim 7668....	1 50	
46510— " " chair broken in transit, claim 8296	90	
47011— " " casters short, claim 8038	1 00	
47350— " " damage to chairs in transit, claim 8134	1 80	
47392— " " shortage hay carts, claim 7513	1 50	
48127—Damage to chairs in transit, claim 7646-7900	3 31	
48380—Damage to chairs in transit, claim 8506-8507	2 15	
48442—Loss account, damage to chair in transit, claim 8503	1 00	
49511— " " " " " " 8505	80	
		$18 76

S. P. TOWNSEND CO., ORANGE, N.J.

49273—Lawn finishers	$8 00	
		$8 00

TUCKETT CIGAR CO., LTD., HAMILTON, ONT.

49265—Tobacco stems	$10 50	
		$10 50

J. F. THOMAS, TIMMINS, ONT.

48382—Loss account, one dozen almond bars pilfered, claim 8484	$ 85	
		$ 85

A. TIGNANELE, NORTH BAY, ONT.

49966—Account unclaimed wages, man No. 5, March, 1914, pay roll, No. 133	$9 50	
		$9 50

THIRD DIVISION COURT OF THE DISTRICT OF NIPISSING, M. W. FLANNERY, CLERK. NORTH BAY, ONT.

49964—For amount of judgment "Clavir *vs.* Powers and T. and N. O. Ry., as per garnishee, summons No. 736	$32 42	
		$32 42

TOMSTOWN LUMBER CO., TOMSTOWN, ONT.

45133—Ties	$96 01
45133— "	41 34
45449— "	211 10
45570— "	589 82

TOMSTOWN LUMBER CO., TOMSTOWN, ONT.—*Continued.*

45570—Ties	$278 40	
46577— "	104 85	
46522— "	305 08	
47443— "	124 80	
47443— "	67 19	
48184— "	6 06	
49611—Loss account, shortage on tin honey from crate, claim 8644	60	
		$1,825 25

TENNESSEE CENTRAL RAILROAD, NASHVILLE, TENN.

46950—Car repairs, bill 3580, October-February, 1914	$8 13	
49439— " " bill 4917, January, 1914	5 88	
50009— " " bill 5477, February, 1914	6 59	
		$20 60

TRETHEWAY SILVER COBALT MINE, LTD., COBALT, ONT.

43913—Overcharge in weight, silver ore, claim 6944	$5 57	
44146— " " " " " 7502	7 56	
45234— " in rate, coal, claim 7922	16 95	
46236— " in weight, silver ore, claim 7790	8 44	
47354— " " " " " 8170	6 24	
		$44 76

TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS, ST. LOUIS, MO.

44571—Car repairs, bill C-49783, August, 1913	$ 39	
45042— " " " 49618, September, 1913	4 96	
46083— " " " 52549, Oct. 12th, 1913	1 85	
46152— " " " 52068, Nov. 1st to 12th, 1913	6 40	
46745— " " " 54883, Dec. 6th, 1913	4 40	
46954— " " " 54492, January, 1914	8 26	
48081— " " " 57439, February, 1914	3 12	
48164— " " " 57100, March, 1914	16 08	
49443— " " " 59933, April, 1914	56	
49358— " " " 59686, May, 1914	20 92	
50005— " " " 62431, June, 1914	7 85	
49784— " " " 62136, July, 1914	9 36	
		$84 15

TAXICABS, LIMITED, TORONTO, ONT.

43855—Taxi service	$ 75	
		$ 75

TRANSCONTINENTAL PASSENGER ASSOCIATION, CHICAGO, ILL.

45290—For superseding pages to official digest of passenger fares and divisions	$30 00	
50208—Superseding pages to official digest of passenger fares and divisions, bill No. 7013	30 00	
		$60 00

"TIMES" PRINTING CO., LIMITED, HAMILTON, ONT.

45065—Advertising Christmas number, 1913	$10 00	
		$10 00

TEXARKANA & FORT SMITH RAILWAY, TEXARKANA, TEX.

46154—Car repairs, bill 31054, December, 1913	$4 48	
48172— " " " 32938, April, 1914	4 51	
49780— " " " 34238, August, 1914	1 00	
		$9 99

TEMISKAMING MINING COMPANY, LTD., COBALT, ONT.

45199—Overcharge in weight, silver ore, claim 7361	$25 72	
48444— " in rate empty ore sacks, claim 5661	7 20	
		$32 92

AGENT T. & N. O. RY., TIMMINS STATION, ONT.

46173—Outstanding account, shipment damaged by frost, claim 8219	$3 78	
46175—Outstanding account, shipment paper short, claim 7250	6 71	
47358— " demurrage account, consignees not properly advised, claim 8431	4 00	
49541— " account, shipment prepaid, claim 7221	3 02	
		$17 51

D. R. THOMAS, DEPT. G. F. & P. A., NORTH BAY, ONT.

44098—Expenses, November, 1913	$53 50	
45559— " December and January, 1913-1914	108 00	
45896— " February, 1914	47 15	
47051— " March and April, 1914	101 95	
47669— " May, 1914	50 30	
48244— " June, 1914	49 85	
48665— " July, 1914	47 70	
48844— " August, 1914	52 05	
50380— " September and October, 1914	84 80	
		$595 30

J. A. H. TAYLOR, NORTH BAY, ONT.

44832—Bags	$3 75	
		$3 75

A. C. TWEED, MCCOOL P.O.

46269—Ties	$84 81	
46635— "	41 45	
46749— "	35 24	
47443— "	17 60	
47443— "	15 00	
48609— "	150 76	
		$344 86

W. J. TAYLOR, EARLTON, ONT.

46658—Ties	$1,066 46	
46882—Telegraph poles	24 00	
47443—Ties	519 60	
47366— "	510 82	
48002—Plank	252 91	
		$2,373 79

J. G. TURNEY, WAH-TAY-BEG, ONT.

46199—Ties	$40 56	
46635— "	19 90	
47443— "	51 89	
		$112 35

TOWNSHIP OF TISDALE, SOUTH PORCUPINE, ONT.

43673—Loss carboy acid, broken in transit, claim 6928	$9 60	
		$9 60

EVA TITTENSON, COBALT, ONT.

44013—For services rendered Commission, November, 1913		$65 00	
43892— " " " " December, 1913		65 00	
44919— " " " " January, 1913		65 00	
45838— " " " " February, 1914		65 00	
46219— " " " " March, 1914		65 00	
46678— " " " " April, 1914		65 00	
46961— " " " " May, 1914		65 00	
47304— " " " " June, 1914		65 00	
49153— " " " " July, 1914		65 00	
48320— " " " " August,, 1914		65 00	
49593— " " " " September, 1914		65 00	
49398— " " " " October, 1914		65 00	
			$780 00

PAUL TOUPIN, RELIEVING LINEMAN, NORTH BAY, ONT.

43971—Expenses, September, 1913	$10 75	
		$10 75

TEXAS & NEW ORLEANS R. R. CO., HOUSTON, TEX.

46156—Car repairs, bill 62654, December, 1913	$10 98	
48005— " " " 65745, February and March, 1914	7 43	
48170— " " " 64885, October, 1914	4 28	
49445— " " " 65030-66557, April-May, 1914	24 71	
50003— " " " 67665, July, 1914	4 42	
		$51 82

TIMES PRINTING CO. OF ST. THOMAS, LTD., ST. THOMAS, ONT.

45481—Advertisement, Christmas number, "The Times"	$5 00	
		$5 00

F. TROUSDALE, COBALT, ONT.

47185—Expenses, April, 1914	$16 75	
		$16 75

TEMPLETON-KINLY CO., LTD., TORONTO, ONT.

47925—Track jacks	$65 70	
		$65 70

TORONTO SALT WORKS, TORONTO, ONT.

47931—Salt	$43 35	
		$43 35

VICTOR THERIEN, COBALT, ONT.

43830—Loss account, shortage one barrel biscuits, claim No. 6839	$6 00	
		$6 00

TOLEDO TERMINAL R.R., TOLEDO, OHIO.

49447—Car repairs, bill No. 674	$0 84	
49354—Car repairs, bill No. 653, July, 1914	9 58	
		$10 42

V. TIGNANELLI, NORTH BAY, ONT.

44277—Unclaimed wages, man No. 3, pay roll 108, March, 1914	$27 99	
		$27 99

L. P. Theriault, Cochrane, Ont.

46320—Loss sack and two cases candy account destroyed by fire, Cochrane, December, 1913	$18 66	
		$18 66

Zatique Therien, Connaught, Ont.

44831—Ties	$4 50	
48500—Slabs	27 75	
		$32 25

Tudhope Lumber Co., Elk Lake, Ont.

46199—Ties	$233 57	
46658— "	116 50	
49931—Lumber	229 13	
		$579 20

C. E. Teeple, Elk Lake, Ont.

47421—Wood supplied phone office, Elk Lake, April, 1914	$2 00	
		$2 00

Timmins Townsite Co., Timmins, Ont.

47556—For lot No. 894, Timmins Townsite	$262 50	
		$262 50

Temiskaming District Poultry Assn., Englehart, Ont.

44017—Donation towards prizes for annual poultry show, January 8th, 1913	$5 00	
		$5 00

A. E. Taylor, Elk Lake, Ont.

46460—Rental of telephone office, Feb. and March, 1914	$20 00	
47365—Repairing line	3 00	
47367—Rental of telephone office, April, 1914	10 00	
47505— " " " May, 1914	10 00	
48735— " " " June and July, 1914	20 00	
49028— " " " August, 1914	10 00	
		$73 00

Temiskaming & Northern Ontario Ry., Stores Account, North Bay, Ont.

43741—Loss account, shortage two castings with connections, claim No. 7094	$1 59
43743—Shortage, one case sheet metal, and freight charges, claim No. 6506	22 58
44153—Loss, stove account, shortage, with connections, claim No. 7608	18 70
43860—Loss account, damage to three castings in transit, with connections, claim No. 7365	1 19
44038—Shortage on bar iron, with connections, claim No. 7755	49
44040—Loss account, shortage, one bag pins, claim No. 7685	4 94
44693—Potatoes, greenhouse, Englehart	5 00
44829— " " "	6 00
44700— " " "	1 00
45197—Loss account, shortage, casting, claim No. 8009	1 25
44830—Potatoes, greenhouse, Englehart	22 00
44950— " " "	16 00
45913—Iron, etc., bill No. 18927	43 27
46177—Shortage, iron, claim No. 7729	55 71
46056—Oils, bill No. 20434, iron, etc., bill No. 20518	12 31

TEMISKAMING & NORTHERN ONTARIO RY., STORES ACCOUNT, NORTH BAY, ONT.—*Continued.*

47109—Loss, coal from car account, hopper doors not closed, claim No. 8253	$58 80	
48147—Loss, handles account, shortage in transit, claim No. 8616	28 23	
50042—Cement	4 88	
50348—Potatoes, greenhouse, Englehart	46 00	
		$349 94

TOWN OF TIMMINS, TIMMINS, ONT.

47561—Water supplied, Sept. 30 to May 22, 1914	$287 85	
		$287 85

E. TRUCHEON, MASTER MECHANICS DEPARTMENT, NORTH BAY JCT.

46673—Expenses, May, 1914	$1 25	
		$1 25

CHAS. H. TOTTY, MADISON, N.J.

48142—Chrysanthemums for Englehart greenhouse	$36 00	
		$36 00

TOLEDO, PEORIA & WESTERN RY., PEORIA, ILL.

48168—Car repairs, bill No. 47824, April, 1914	$1 26	
		$1 26

H. TINDALL, COBALT, ONT.

48181—Loss and damage to baggage account, derailment train No. 47, March, 1914, claim No. 8721	$20 00	
		$20 00

TORONTO IRON WORKS, TORONTO, ONT.

48371—Express charges paid on tools, claim No. 8448	$6 60	
		$6 60

TRIBUNE PRINTING CO., THE WELLAND TRIBUNE, WELLAND, ONT.

48557—Advertisement, Homeseekers' excursion	$1 25	
		$1 25

THE TWEED ADVOCATE, TWEED, ONT.

48559—Advertisement, Homeseekers' excursion	$2 00	
		$2 00

TIMES PRINTING CO., HAMILTON, ONT.

48867—Advertisement, Homeseekers' excursion	$10 00	
		$10 00

A. TALBAT & CO., THE ECHO, LONDON, ONT.

48881—Advertisement, Homeseekers' excursion	$5 00	
		$5 00

TEMPLETON & SON, THE NAPANEE BEAVER, NAPANEE, ONT.

48919—Advertisement, Homeseekers' excursion	$0 70	
		$0 70

TIMES PRINTING CO., ORILLIA, ONT.

48937—Advertisement, Homeseekers' excursion $2 50 $2 50

TIMES PRINTING CO., PETERBOROUGH, ONT.

48963—Advertisement, Homeseekers' excursion $6 30 $6 30

TIMES PRINTING CO., ST. THOMAS, ONT.

49011—Advertisement, Homeseekers' excursion $3 82 $3 82

THE THAMESVILLE HERALD, THAMESVILLE, ONT.

49021—Advertisement, Homeseekers' excursion $0 65 $0 65

THE TILLSONBURG LIBERAL, TILLSONBURG, ONT.

49025—Advertisement, Homeseekers' excursion $1 00 $1 00

THE TWEED NEWS, TWEED, ONT.

49029—Advertisement, Homeseekers' excursion $2 00 $2 00

THE TILBURY TIMES, TILBURY, ONT.

49031—Advirtisement, Homeseekers' excursion $2 80 $2 80

TRADES AND LABOR CONGRESS, TORONTO, ONT.

48416—Advertisement, official annual convention, 1914 convention $25 00 $25 00

TORONTO DISTRICT LABOR COUNCIL RELIEF FUND, TORONTO, ONT.

48524—Donation, relief fund $25 00 $25 00

T. & N. O. RY. TOWNSITE ACCOUNT.

48538—For amount paid by Knight Bros., interest on lots, Cochrane $232 89 $232 89

TEMISKAMING COUNTY L.O.L., NO. 60, NEW LISKEARD, ONT.

48754—Commission on sale of tickets, Orange celebration, July 13th, 1914 . . . . . $157 90 $157 90

TAXICABS, LTD., TORONTO, ONT.

49756—Taxicab service $0 90
49853— " " 70 $1 60

TORONTO DAILY STAR, TORONTO, ONT.

48902—Advertisement, Homeseekers' excursion $7 50 $7 50

TRAFFIC SERVICE BUREAU, CHICAGO, ILL.

50433—One year's subscription to The Traffic World to July 12th, 1915	$10 00	
		$10 00

UNION PACIFIC RAILROAD, OMAHA, NEB.

45401—Car Service balance, November, 1913	$9 45	
45492— " " " December, 1913	9 00	
46089—Car repairs, bill No. 218522	25 41	
46409—Car service balance, January, 1914	1 80	
46437—Ticket balance, January, 1914	7 71	
46842—Car service balance, February, 1914	9 90	
46874—Ticket balance, February, 1914	22 64	
47526—Car service balance, April, 1914	90	
48178—Car repairs, bill No. 224969	1 03	
48129—Overcharge in weight on silver ore, claim No. 8347	1 98	
49451—Car repairs, bill No. 228824-226155	4 00	
49517—Overcharge in rate and weight on silver ore, claim No. 8706	56 74	
49715—Overcharge in weight on silver ore, claim No. 8739	1 35	
		$151 91

UNITED TYPEWRITER COMPANY, LTD., TORONTO, ONT.

43991—Repairing Underwood No. 276618-5, pica	$11 00	
43938—Monthly inspection five typewriters with ribbons, Oct., Nov., Dec.	15 00	
44644—Paper and ribbon	9 00	
45069—Typing agreements, copies of annual report, Oct. 31st, 1913	8 85	
44952—Supplies for typewriters	5 76	
45054—Paper and ribbons	23 63	
45917—Repairs, typewriter, type bar platen, paper	122 87	
45594—Inspection of machines, typing agreements	20 50	
45652—Type-bar letter "M" and postage	62	
45958—Type bar and type letter "E," copies of agreement	3 32	
46058—Type bar and type letter "2," ribbons, supplies	45 73	
46497—Letter "D" for Underwood No. 3 and postage	62	
46927—Ribbons, paper, supplies, etc.	57 00	
47020—Type bar letter "E" for Underwood	62	
47266—Type bar letter "C" and monthly inspections, April, May, June, 1914,	17 47	
47565— " " "	15 62	
47727—Underwood typewriter No. 23933-3-18, pica	140 00	
49317—Paper and ribbons	8 00	
48148—Underwood typewriter No. 694713-5, pica	99 60	
48793—Type bar and type for Underwood "R"	62	
49279—Brush, cloths	27 89	
48888—No. 5 Underwood, platen, monthly inspection, July, August and September	17 50	
49026—Type bar complete, "P" for No. 3	62	
49238—Ribbons	10 34	
49855—Paper clamp	82	
50209—Repairing machine, copying	16 55	
50381—Ink	6 75	
49686—Cleaning, etc., Underwood typewriter No. 142456	8 10	
50044—Typewriter supplies	7 00	
50354—Typewriter supplies	14 95	
50438—Repairs to Underwood No. 16879-14, pica	10 32	
		$726 67

UNITED STATES STEEL PRODUCTS EXPORT CO., NEW YORK, N.Y.

46243—Steel channels	$6 21
46398— " bars, plates, angles	76 99
47507— " wheels and wire	202 50

UNITED STATES STEEL PRODUCTS EXPORT CO., NEW YORK, N.Y.—*Continued.*

47791—Steel channels	$22 05	
48150— " angles	3 48	
48854— " plates and angles	248 41	
49949— " plates	85 38	
49568— " plates	74 81	
		$819 83

UNION RAILROAD COMPANY, PITTSBURG, PA.

44123—Car service balance, September, 1913	$85 05	
44483—Car repairs, bill C-602, Aug. 12-17	3 98	
45405—Car service balance, Oct. and Nov., 1913	244 80	
45046—Car repairs, bill C-951	3 95	
45490—Car service balance, December, 1913	130 95	
46407— " " " January, 1914	70 20	
46840— " " " February 1914	52 20	
47271— " " " March, 1914	39 15	
48089—Car repairs bill C-2092, March, 1914	4 98	
47524—Car service balance, April, 1914	37 35	
48299— " " " May, 1914	34 65	
49499—Car repairs, bill No. 4343, April, 13-21, 1914	8 55	
48692— " " " 4650, June, 1914	14 85	
50011— " " " 7375, July	42	
49788— " " " 8318, July, 1914	1 13	
		$732 21

VANDALIA RAILROAD COMPANY, TERRE HAUTE, IND.

44125—Car service balance, September, 1913	$8 55	
44368— " " " October, 1913	5 40	
45403— " " " November, 1913	1 80	
45494— " " " December, 1913	3 15	
46091—Car repairs, bill No. 8648, May 18, to July 19, 1913	17 36	
46956— " " " 2615, Marh to Nov., 1913	4 83	
47273—Car service balance, March, 1914	19 35	
		$60 44

UNION REFRIGERATOR TRANSPORTATION CO., MILWAUKEE, WIS.

46844—Car service balance, February, 1914	$1 60	
48301— " " " May, 1914	80	
48694— " " " June, 1914	2 47	
49795— " " " July, 1914	4 06	
		$8 93

VICKSBURG, SHREVEPORT & PACIFIC RAILWAY, NEW ORLEANS, LA.

44127—Car service balance, September, 1913	$3 15	
		$3 15

VAUGHAN'S SEED STORE, CHICAGO, ILL.

47268—Seeds	$8 00	
		$8 00

VIRGINIAN RAILWAY CO., NORFOLK, VA.

44129—Car service balance, September, 1913	$21 15	
44370— " " " October, 1913	8 10	
48174—Car repairs balance, March, 1914	24 91	
		$54 16

UNION TANK LINE, NEW YORK, N.Y.

44372—Car service balance, Oct., 1913		$0 83	
45407— " " " Nov., 1913		77	
46846— " " " Feb., 1914		1 54	
47275— " " " March, 1914		4 69	
47530— " " " April, 1914		3 86	
48303— " " " May, 1914		4 66	
48696— " " " June, 1914		7 81	
49797— " " " July, 1914		2 38	
49502— " " " August, 1914		3 98	
50134— " " " September, 1914		9 30	
			$39 82

UNITED COAL SALES COMPANY, DETROIT, MICH.

44702—Smithing coal	$57 23	
44954—Coal, car P.R.R. 65341	55 13	
		$112 36

WM. G. VERNER RELIEVING FOREMAN, NORTH BAY, ONT.

44765—Expenses, November, 1913	$18 80	
		$18 80

VERONA TOOL WORKS, PITTSBURGH, PA.

47939—Claw bars	$18 22	
49281—Wrenches	9 02	
		$27 24

VENICE TRANSPORTATION CO., ST. LOUIS, MO.

46848—Car service balance, February, 1914	$3 78	
		$3 78

VALENTINE & SONS, UNITED PUBLISHING CO., LTD., MONTREAL, P.Q.

45625—Cards	$36 27	
		$36 27

ELMER J. VARRETT, NEW LISKEARD, ONT.

47053—Expenses, April, 1914	$14 00	
		$14 00

DR. E. G. VERNON, COCHRANE, ONT.

47141—For professional services rendered Messrs. Murray and Allen, of Toronto, re injuries alleged received at M.P. 96½, train No. 47, March 9th, 1914	$7 00	
		$7 00

J. R. URQHART, NEW LISKEARD, ONT.

43721—Overcharge in freight, settler's effects, claim No. 7012	$16 00	
		$16 00

W. VANMEER, THORNLOE, ONT.

50446—Ties	$172 81	
		$172 81

UNION REFRIGERATOR TRANSIT CO., MILWAUKEE, WIS.

47526—Car service balance, April, 1914	$0 80	
		$0 80

UNION SWITCH & SIGNAL CO., SWISSVALE, PA.

48146—Electric staff equipment	$595 00	
49240—Pouches for holding staffs	31 00	
		$626 00

UNITED CANADA PRTG. & EVG. CO., LTD., OTTAWA, ONT.

48191—Advertisement, June 6th, 1914, Homeseekers' excursion	$15 00	
		$15 00

MRS. M. VAILLANCOURT, ENGLEHART, ONT.

48595—Meals supplied linemen	$11 25	
49688—Meals supplied linemen, July 20th and Sept. 9th, 1914	6 75	
		$18 00

THE "VICTORIA HARBOR ERA," VICTORIA HARBOR, ONT.

49041—Advertisement, Homeseeker's excursion	$1 00	
		$1 00

UNION RAILWAY CO., PITTSBURG, PA.

49453—Car repairs, bill C 2596	$1 69	
		$1 69

HENRY VERNON & SON, HAMILTON, ONT.

50101—Copies of North Bay Directory	$5 00	
		$5 00

S. VERTLICH, VICTORIA HARBOR, ONT.

49438—Loss account, wine broken in transit, claim No. 8794	$6 75	
		$6 75

WARWICK BROS. & RUTTER, LTD., TORONTO, ONT.

44283—Forms	$56 65
44343—Pens and pencils	13 92
44646—Books	31 00
45071—Forms	84 25
44742—Books	18 75
44956—Forms	60 00
45056—Forms	13 31
45731—Letter heads, copy sheets	58 50
45620—Pencils	3 70
46245—Pens	6 86
46060—Time record cards, forms, binder	28 00
46499—Accounts collectible and accounts payable, registers	94 00
46929—Books	108 75
47022—Forms	9 00
47278—Books	66 50
47947—Pay cheques, pencils, envelopes	126 26
47800—Letter heads, voucher forms	84 00
48156—Cheque book	16 50
48597—Pencils	1 90
48795—Forms	7 50
49283—Tissue book, forms	15 00

WARWICK BROS. & RUTTER, LTD., TORONTO, ONT.—*Continued.*

48614—Pencils	$1 90	
49030—Letter paper, forms	21 50	
49254—Tissues	6 35	
50385—Despatchers' transfer books	34 50	
50358—Pens, envelopes	75 00	
		$1,043 60

WABASH RAILROAD, ST. LOUIS, MO.

43856—Overcharge in rate, mining machinery, claim No. 7394	$8 00	
44977— " " " 7394	.76	
45048—Car repairs, bill R 47109, April to Sept., 1913	20 28	
45674—Handling car No. 60415 E, St. Louis to Detroit, bill R 50751	12 15	
46319—Car repairs, bill No. 52220	50 70	
49457— " " " 58947	60 23	
48388—Overcharge in weight on machinery, claim No. 7640	3 42	
49360—Car repairs, bill No. R-61871	8 94	
49790— " " " R-63866	1 86	
50148—Ticket balance, September, 1914	2 62	
		$168 96

WORLD'S ONLY DUSTLESS BRUSH CO., NORTH BAY, ONT.

44834—Brushes	$6 50	
46018— "	3 25	
46935—Brooms	6 75	
47274— "	7 50	
		$24 00

W. WARD (GARDENER), ENGLEHART, ONT.

50086—Expenses, October, 1914	$2 75	
		$2 75

WHITMAN & BARNES MFG. CO., ST. CATHARINES, ONT.

44549—Cotters	$48 51	
44749—Wrenches	22 00	
45921—Drills	72 03	
46074—Cotters	19 84	
46933—Drills, tools	35 18	
47276—Cotters, keys, wrenches	34 14	
47943—Wrenches, cotters, hammers	30 56	
48158—Wrenches, cotters	30 87	
48222—Drills	5 38	
49295—Wrenches	7 00	
49250—Drills, tools, cotters	56 24	
50383—Cotters	6 30	
50356— "	6 11	
		$374 16

WABASH, PITTSBURG TERMINAL RY.

46854—Car service balance, January, 1914	$90 90	
47281— " " " March, 1914	127 35	
47532— " " " April, 1914	20 70	
48176— " repairs, bill R-25682, January, 1914	3 14	
49459— " repairs, bill 25915, February, 1914	1 63	
48700— " service balance, June, 1914	13 05	
49803— " " " July, 1914	3 60	
49506— " " " August, 1914	22 95	
		$283 32

J. B. Watson, Pittsburg, Pa.

45172—Services auditing accounts Right of Way Mines, for year ending December 31st, 1913	$100 00	
50054—Services auditing accounts Right of Way Mines, to June, 1914	50 00	
		$150 00

Wheeling & Lake Erie Railroad, Pittsburg, Pa.

44131—Car service balance, September, 1913	$1 35	
44376— " " " October, 1913	5 40	
45409— " " " November, 1913	8 55	
46095—Car repairs, bill 45334, June 12th, 1913	62	
46411—Car service balance, January, 1914	82 35	
46656—Car repairs, bill 47464, Dec. 12th to Jan. 24th, 1914	3 09	
46850—Car service balance, February, 1914	48 15	
47277— " " " March, 1914	9 90	
49455—Car repairs, bill R-49516	2 49	
48698—Car service balance, June, 1914	19 80	
49799— " " " July, 1914	4 95	
49504— " " " August, 1914	3 15	
		$189 80

The Watson Co., Limited, New Liskeard, Ont.

44030—Loss account, lantern globes, claim No. 7503	$1 17	
44032— " " damage to syrup, claim No. 7102	9 70	
45236— " " shortage strawberries, claim 7762	7 70	
46518— " " sugar damaged, claim 8283	99	
47394— " " damage to eggs in transit, claim 7286	2 34	
48446— " " shortage butter, claim 8142	1 43	
49519— " " damage to pails of pickles, claim 8362	2 50	
49615—Overcharge in weight on hay, claim 8419	2 93	
49721—Refund of demurrage assessed in error, claim 8766	2 00	
49612—Siding rebate, April to August, 1914, claim 9103	66 00	
		$96 76

West Side Belt Railroad, Pittsburg, Pa.

44378—Car service balance, October, 1913	$5 85	
45411— " " " November, 1913	10 80	
45496— " " " December, 1913	2 25	
46413— " " " January, 1914	31 50	
		$50 40

E. T. Wright & Co., Ltd., Hamilton, Ont.

46066—Lanterns	$20 08	
46931—Fonts for lanterns	1 00	
49248—Lanterns	19 50	
		$40 58

W. A. Wood, Montreal, Que.

49297—Time recorder	$193 50	
		$193 50

Western Maryland Railroad, Baltimore, Md.

44380—Car service balance, October, 1913	$0 45	
46415— " " " January, 1914	8 10	
46852— " " " February, 1914	5 40	
48091—Car repairs, bill 4315	2 26	
49461— " " " 6139	54	
49362— " " " 6514	1 72	
49794— " " " 7778	2 52	
		$20 99

WOOD, VALLANCE & CO., HAMILTON, ONT.

44547—Hardware, etc.	$12 08	
46068— "	12 30	
46937— "	13 88	
47949—Drawer pulls	2 22	
		$40 48

E. R. WATTS & SON, CANADA, LTD., OTTAWA, ONT.

44695—Tracing linen	$52 49	
		$52 49

C. G. WATSON, NORTH BAY, ONT.

48846—Expenses, July, 1914	$14 95	
		$14 95

WABI IRON WORKS, LISKEARD, ONT.

43733—Siding rebate, June 1st to Sept. 30th, 1913, claim 7603	$78 00	
43931—Loss account, shortage four bars steel and fit, claim 7159	7 99	
45238—Shortage shipment tubing, claim 7165	1 95	
46939—Manhole covers	24 09	
48154—Well points	37 15	
49719—Siding rebate, Sept. 30th, 1913, to March 31st, 1914, claim 8176	200 66	
49610—Siding rebate, April to August, 1914, claim 9104	75 00	
		$424 75

WESTERN FREIGHT TRAFFIC ASSN., CHICAGO, ILL.

43836—Refund of car service and reconsigning charges	$7 00	
		$7 00

A. J. WENDTWEIGHT, SESEKINIKA, ONT.

44054—Loss saw account, shortage in transit, claim No. 6930	$60 05	
		$60 05

WICHITA FALLS & NORTH WESTERN RY., WICHITA FALLS, TEX.

44133—Car service balance, September, 1913	$6 30	
45050—Car repairs, bill B-2364	98	
		$7 28

GEO. WHITTON, CHARLTON, ONT.

45098—Loss account, damage to 3 cases mdse., claim 7322	$8 14	
45100—Loss account, damage to goods in transit, claim 7354	17 85	
		$25 99

WASHINGTON SOUTHERN RY., RICHMOND, VA.

44897—Car repairs, bill 7502	$0 42	
50013— " " " 10983	4 30	
49792— " " " 12253	2 23	
		$6 95

WATSON, JACK & CO., MONTREAL, QUE.

44551—Bluestone	$49 50	
46070— "	49 89	
47945— "	48 51	
		$147 90

THOS. S. WOOLINGS, ENGLEHART, ONT.

44379—Plunger and Hiller, supplied D. Kerrigan, months May and July, 1913	$6 00	
		$6 00

R. R. WOODS, ELK LAKE, ONT.

44152—Loss account, shortage wire netting, claim No 7409	$4 91	
46238— " " " saws, claim No. 7331	3 60	
		$8 51

WAGER & GRIFFITH FURNITURE CO., NORTH BAY, ONT.

47951—Mattresses	$43 20	
49246— "	28 80	
48220— "	14 40	
49287— "	9 60	
		$96 00

WEST DISINFECTANT CO., TORONTO, ONT.

50387—Disinfectant	$20 00	
		$20 00

F. P. WEAVER COAL CO., BUFFALO, N.Y.

43737—Overcharge in weight coal, claim No. 6939	$9 75	
43917—Overcharge in rate coal, claim No. 6931	6 00	
43834—Overcharge account, error in calculation, claim No. 7561	29 24	
44981—Overcharge in rate coal, claim No. 6933	7 72	
44983—Refund of demurrage account, error in time, claim 7814	3 00	
45096—Refund of demurrage assessed in error, claim 7937	13 00	
45240—Overcharge in rate coal, claim No. 8003-8002-8115	20 27	
46240—Overcharge in rate coal, claim No. 7842	21 37	
46689—B. and L. E., No. 12407, March, 79,500 lbs. coal	81 33	
47360—Overcharge in weight on coal, claim 7329	3 25	
48373—Refund demurrage charges and overcharge rate on coal, claims 8577-8637-8594	40 85	
48390—Overcharge in rate on coal, claim 8638	11 00	
49717—Overcharge in freight and weight on coal, claims 8168-8801	11 47	
		$258 25

P. WENNESHEIMER, MCCOOL P.O., ONT.

46199—Ties	$51 93	
46658— "	24 45	
47443— "	74 35	
48609— "	56 70	
		$207 43

WESTERN RAILWAY OF ALABAMA, GA.

44382—Car service balance, October, 1913	$1 80	
45413— " " " November, 1913	4 05	
47279— " " " March, 1914	4 05	
49801— " " " July, 1914	90	
		$10 80

WESTERN PACIFIC RAILWAY, SAN FRANCISCO, CAL.

46093—Car repairs, bill 11194, Nov. 18th-24th, 1913	$1 20	
		$1 20

THE WATER SUPPLY CO., NORTH BAY, ONT.

49293—Blockettes, carbolacone	$55 50	
49088—Carbolacone	33 50	
49649— "	37 50	
50046— "	37 50	
		$164 00

THOMAS WALMSLEY, PICTON, ONT.

45568—For services rendered *re* transfer of 1.3 acres N. ½ lot 2, con. 5, Cane	$2 00	
		$2 00

WALKERVILLE HARDWARE CO., LTD., WALKERVILLE, ONT.

47272—Cementseal	$40 00	
47941— "	55 00	
48152— "	27 50	
		$122 50

F. MILES WALLINGFORD, TIMMINS, ONT.

43675—Loss one case raisins account shortage in transit, claim No. 7120	$3 25	
		$3 25

HAROLD WELCH, THORNLOE, ONT.

43735—Loss account damage by fire and smoke to shipment H. H. goods in North Bay yard, claim 7131	$40 00	
		$40 00

MRS. J. P. WARNER, NEW LISKEARD, ONT.

43919—Loss account shortage on box syrup, claim No. 6978	$13 90	
		$13 90

E. G. WEST & CO., TORONTO, ONT.

44979—Loss port and cod liver oil, damaged in transit, claim No. 7521	$2 71	
		$2 71

ISAAC WALLE, COCHRANE, ONT.

45091—Pulpwood cut on Cochrane Townsite	$200 00	
45157— " " " "	250 00	
45176— " " " "	250 00	
46400— " " " "	50 00	
		$750 00

J. C. WILLIAMS, TORONTO, ONT.

46076—Thermometers	$9 60	
		$9 60

W. H. WARKE, COCHRANE, ONT.

46559—Services rendered *re* extra land at Homer and Wahtaybeag	$5 00	
		$5 00

GEO. WILSON, COBALT, ONT.

46270—Loss account shortage 3 pieces furniture, claim No. 8139	$25 00	
		$25 00

GEO. D. WADDELL, TORONTO, ONT.

46322—Overcharge in weight hay, claim 8018	$9 46	
		$9 46

GUSTAV WIEDAKE & CO., DAYTON, OHIO.

44631—Tube expanders	$12 96	
45919— " " parts	16 80	
46072— " "	2 92	
49291— " "	12 80	
49244— " "	11 28	
		$56 76

WILLIAMS & WILSON, LTD., MONTREAL, QUE.

47270—Universal joints	$4 80	
49252—Elbows, tees, crosses	2 26	
		$7 06

C. L. WILLIAMS, CONNAUGHT, ONT.

45144—Telegraph poles	$16 40	
48868—Ties	25 20	
49242—Lumber	102 80	
50437—Ties	172 05	
		$316 45

THE WHEELER LIVERY, SOUTH PORCUPINE, ONT.

45350—Team with mail to Timmins, account flood, April 25th and 26th, 1913	$6 00	
		$6 00

WALTER WOODS & COMPANY.

46516—Loss, one case, destroyed in fire at Earlton, June 30th, 1913	$8 80	
		$8 80

BENJAMIN WOOD, MATHESON, ONT.

46199—Ties	$217 38	
46635— "	106 85	
		$324 23

WORCESTER BRUSH & SCRAPER CO., WORCESTER, MASS.

46064—Track broom	$9 00	
		$9 00

ARTHUR WHITEHEAD, ANTHONY P.O., ONT.

46749—Ties	$38 48	
47220— "	18 55	
		$57 03

W. WILLIAMS, HEASLIP, ONT.

48868—Ties	$17 45	
		$17 45

F. H. WHITTLESEY CO., WINDSOR LOCKS, CONN.

46062—W/O tissues	$25 50	
		$25 50

J. F. Whitson, Cochrane, Ont.

50103—Lumber . . . . . $13 45 — $13 45

Walter Walstrom, Monteith, Ont.

46635—Ties . . . . . $139 00 — $139 00

Mrs. H. Wise, Cochrane, Ont.

49623—Loss account, shortage, dry goods in transit, claim No. 8705 . . . . . $36 45 — $36 45

Wm. Watts, Monteith, Ont.

46522—Ties $89 77
46882— " . . . . . 44 50 — $134 27

Woman's Institute, New Liskeard, Ont.

47029—Donation towards New Liskeard School children's fair .. $10 00 — $10 00

Widnoon Coal Mining Co., Buffalo, N.Y.

47449—Smithing coal, N.Y.C., cars 81303-85112 ..... $218 66 — $218 66

Miss Flora Webster, North Bay, Ont.

47448—Two weeks services, rendered June-July, 1914, Commissioner Lee's office, North Bay ..... $30 00 — $30 00

C. D. Winn, Toronto, Ont.

47662—Altering and sewing rug . . . . $3 50 — $3 50

World Newspaper Co., Ltd., Toronto, Ont.

47664—Subscription, Dec. 1, 1913, to Dec. 1, 1914 . ..... $3 00 — $3 00

Welland Vale Mfg. Co., Ltd., St. Catharines, Ont.

47700—Scythes $50 76
48612— " . . . . . 19 11 — $69 87

A. H. Watson, "Creemore Star," Creemore, Ont.

48435—Advertisement, Homeseekers' excursion . . . . $2 00 — $2 00

"The Watchman," Arnprior, Ont.

48797—Advertisement, Homeseekers' excursion . . .. $2 00 — $2 00

ROBERT WILSON, "THE LANARK ERA," LANARK, ONT.

48877—Advertisement, Homeseekers' excursion . ..... $5 44 — $5 44

THE "WARDER," LINDSAY.

48879—Advertisement, Homeseekers' excursion . ..... $2 50 — $2 50

R. WHITE, MILTON REFORMER, MILTON, ONT.

48905—Advertisement, Homeseekers' excursion . . .. $1 00 — $1 00

WALKER BROS., PERTH, ONT.

48971—Advertisement, Homeseekers' excursion . . .. $1 25 — $1 25

WINGHAM TIMES, WINGHAM, ONT.

49051—Advertisement, Homeseeker's excursion ..... $1 25 — $1 25

THE WHEATLEY JOURNAL, WHEATLEY, ONT.

49055—Advertisement, Homeseekers' excursion . . .. $1 00 — $1 00

THE WATERFORD STAR, WATERFORD, ONT.

49061—Advertisement, Homeseeker's excursion . . .. $1 00 — $1 00

F. H. WHITTLESEY CO., WINDSOR LOCKS, CONN.

49285—Yellow R.R. tissue sheets, 15 in. x 18 in. ..... $25 50 — $25 50

WOODVILLE ADVOCATE, WOODVILLE, ONT.

48900—Advertisement, Homeseekers' excursion . . .. $1 50 — $1 50

WEBB STATIONERY & PRINTING CO., CINCINNATI, OHIO.

49289—Peerless covers, leaves and indexes ..... $9 46 — $9 46

L. C. WIDEMAN, ENGLEHART, ONT.

48386—Loss account, one pot broken in transit, claim No. 8574 $0 85
49614—Loss account, shortage iron bars, claim No. 8567 ..... 82 — $1 67

C. A. WISMER, NEW LISKEARD, ONT.

48446—Loss 5 gals oil of tar, claim No. 8624 ..... $3 00 — $3 00

T. E. WARNER, NORTH BAY, ONT.

48848—Expenses, May, June, July, August, 1914 ..... $72 70
50167— " September, 1914 . . . . 14 70 — $87 40

R. Williamson, North Bay, Ont.

49876—Expenses, September and October, 1914	$38 80	
		$38 80

The Young Company, Ltd., North Bay, Ont.

43923—Shipt. receipted for at Cochrane, delivery not taken, claim No. 7201	$65 67	
44633—Butter, groceries	123 17	
44635—Groceries	231 12	
44751— "	43 54	
44704—Provisions	35 15	
45203—Catsup, frozen and broken in transit, claim No. 6538	12 20	
44836—Groceries	172 86	
44958— "	5 05	
45923— "	7 59	
46078—Bon ami, lye, etc	34 63	
47280—Provisions	162 96	
47953—Groceries	713 35	
47396—Loss account, shortage, one box macaroni and chgs., claim No. 8123	1 98	
48160—Groceries	463 93	
48224— "	137 70	
49299— "	575 45	
48394—Loss account, shortage, butter and tomatoes, claims Nos. 8289-8458	7 22	
49256—Groceries	933 68	
49521—Loss, pickles account, damage to pail in transit, claim No. 8460	1 65	
49725—Loss account, shortage, sugar, claim No. 7406	4 87	
50389—Groceries	571 31	
50048— "	380 35	
50362— "	222 48	
		$4,907 91

William Young (Roadmaster), North Bay, Ont.

43973—Expenses, October, 1913	$11 20	
44713— " November, 1913	4 60	
44776— " December, 1913	9 40	
45563— " January, 1914	6 45	
45898— " February, 1914	5 65	
46629— " March, 1914	45 70	
47055— " April, 1914	3 60	
47675— " May, 1914	1 90	
47640— " June, 1914	4 10	
48669— " July, 1914	11 35	
48850— " August, 1914	7 95	
50169— " September, 1914	7 45	
50088— " October, 1914	9 45	
		$128 80

National Council Y.M.C.A. of Canada, Toronto, Ont.

45093—For work of National Council of Y.M.C.A. of Canada, year ending December 31st, 1914	$20 00	
		$20 00

Zanesville & Western Railway, Toledo, Ohio.

45052—Car repairs, bill No. 1877	$1 72	
		$1 72

W. J. YATES COMPANY, NEW LISKEARD, ONT.

43739—Loss account, two bottles whiskey, broken in transit, claim No. 7240		$1 93	
43838—Loss on liquor in transit, claim No. 7243		5 04	
44171— " " " " 7266		9 40	
43858— " " " claims Nos. 7403-7615-7577-7613		8 08	
44034— " " " claims Nos. 7466-7611		1 66	
44036— " " " claim No. 7612		70	
44154— " " " claims Nos. 7451-7605		3 03	
44156— " " " " 7606-7764		1 80	
44158— " " " " 7727-7725-7726		5 54	
44999— " " " " 7827		72	
45001— " " " " 7767-7783		4 44	
45201— " " " " 7821-7824-7957		3 23	
45102— " " " " 7817-22-63-58-59		7 09	
45242— " " " " 7728-7826		4 73	
46155— " " " " 8044		1 73	
46244— " " " " 8244 - 7960-8246-8250		4 45	
46324— " " " " 8248		98	
46520— " " " " 8045		2 25	
47111— " " " " 7823-8288		2 15	
48131— " " " " 8243 - 47 - 86 - 87-8514		25 54	
48392— " " " " 8245-8513-8455		9 06	
48450— " " " " 8249		2 35	
49723— " " " " 8508		3 91	
49440— " " " " 7604 - 8867 - 8866 8863		20 72	
			$130 53

WILLIAM YOUNG, IROQUOIS FALLS, ONT.

46658—Ties		$101 01	
46658— "		103 26	
450446— "		50 00	
			$254 27

FREDERICK YOUNG, CHICAGO, ILL.

50360—Heater, burners		$18 00	
			$18 00
Grand total accounts payable fiscal year ending October 31st, 1914			$3,090,259 50
Sundry additional accounts			673 37
			$3,090,932 87

DISTRIBUTION OF ACCOUNTS PAYABLE FISCAL YEAR 1913 UNDER THE SEVERAL HEADINGS PROVIDED FOR BY CLASSIFICATION INTERSTATE COMMERCE COMMISSION.

Maintenance of ways and structures	$25,950 98
Maintenance of Equipment	3,731 19
Traffic expenses	7,688 91
Transportation expenses	35,261 38
General expenses	25,534 52
Overcharges	9,489 05
Shop stock	218,047 34
Coal stock	138,383 69
Oil and waste stock	11,174 43
Stationery stock	11,019 74
Ties stock	61,099 98
Rails	54,686 56
Foreign freight	397,803 76

DISTRIBUTION OF, ETC.—*Continued.*

Foreign tickets	$74,550 87	
Car service	68,218 85	
Construction	32,783 74	
Additions and betterments	82,980 59	
Other roads, proportion	2,435 63	
Accounts collectible	5,007 85	
Freight revenue	7,185 78	
Townsites	11,766 31	
Ore Royalties	2,987 19	
Pay rolls	111,001 23	
Insurance	32,737 50	
Elk Lake Branch	2,128 18	
Iroquois Falls Branch	14,682 20	
James Bay Exploration	692 29	
Gowganda, Sudbury	67 67	
Porcupine Branch	652 70	
Unclaimed wages	267 44	
Switching revenue	1,543 92	
Outside operations	1,914 61	
Car service demurrage	219 90	
Suspense	1,077 18	
Foreign telephone	10,394 01	
Terminal working expenses	3,395 48	
Stores	819 77	
Passenger revenue	2,701 77	
Private car, Sir James	1,132 63	
Electrification of road	1,354 82	
Deposits on sidings	5,058 23	
Nipissing Central Ry Advance	130,871 00	
Rents	67 94	
North Bay terminals	32 00	
Nipissing Jct. spur	57 52	
Steel equipment	249,241 82	
Hire of equipment	1,359 35	
Fire ranging	5,000 00	
Treasurer of Ontario	225,000 00	
	$3,090,259 50	
Sundry additional accounts	673 37	
	$3,090,932 87	

SUMMARY.

Balance accounts, payable November 1, 1913	$541.831 25	
Accounts payable fiscal year, as per statement	3,090.932 87	
	$3,632.764 12	
Less accounts cancelled to Oct. 31st, 1914	11.938 72	
	$3,620,825 40	
By cash payments, fiscal year 1914		$3,082,789 58
Balance outstanding as per general balance sheet		538,035 82
	$3,620,825 40	3,620,825 40

At Flat Rapids.

Horses for J. R. Booth's Lumber Camps on Montreal River.

CONTRACTS, AGREEMENTS, ETC.

Alterations to Wahtahbeag River Bridge and Russell Creek Culvert.

Tenders Wahtahbeag River Bridge.

Messrs. Clarke & Clarke	$5,023 00
Messrs. Sherwood & Sherwood	5,116 00
Messrs. Henderson & Henderson	7,290 00
Frank Munro	5,643 00

Tenders Russell Creek Culvert.

Messrs. Clarke & Clarke	$8,325 00
Messrs. Sherwood & Sherwood	8,742 75
Messrs. Henderson & Henderson	12,008 00
Frank Munro	9,798 50x

x Does not include removing old concrete.

Contract awarded Messrs. Clarke & Clarke for both works.

MEMORANDUM OF AGREEMENT made in duplicate this 29th day of August in the year of our Lord one thousand nine hundred and fourteen.

BETWEEN:

WILLIAM MORLEY CLARKE, and LEONARD OSWALD CLARKE, both of the Town of North Bay in the District of Nipissing, Contractors, hereinafter called the Contractors.

and

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WITNESSETH AS FOLLOWS:

In consideration of the covenants and agreements hereinafter contained and to be performed by the Commission and of the price hereinafter mentioned, the Contractors hereby covenant and agree with the Commission as follows:

1. In this Agreement the word "work" or "works" shall, unless the context requires a different meaning, mean the whole of the work and materials, matters and things required to be done, furnished and performed by the Contractors under this Agreement.

2. The words "Engineer" or "Chief Engineer" when used in this agreement or in the specifications hereinafter mentioned, shall mean the Chief Engineer of the Temiskaming and Northern Ontario Railway Commission for the time being acting as such either directly or through the Assistant Chief Engineer, Division Engineer, Assistant Engineer, Resident Engineer or Inspector, having immediate charge of the work or of that portion thereof limited by the particular duties entrusted to him. All instructions and directions or certificates given or decisions made by anyone acting under the authority of the Chief Engineer shall be subject to his approval and may be cancelled, altered, modified and

changed as he may see fit. In all cases where the Contractors are dissatisfied with the decision of the Engineer or Inspector in immediate charge of the work, an appeal to the Chief Engineer may be made. It is declared and agreed that it shall not be in the power of the Chief Engineer or any Engineer or Inspector to waive any of the provisions of this agreement and no waiver of any such shall on any pretence be claimed by the Contractors.

3. Whenever in this agreement it is stipulated that anything shall be done or performed by either of the parties hereto, it shall have the same effect and be construed as if the said party had thereby entered into a covenant with the other party to do or perform the same, and that any such covenant had been expressly made and entered into not only by for or on behalf of the parties hereto respectively, but also by for and on behalf of their respective executors, administrators, successors and assigns as the case may be.

4. The Contractors will at their own expense provide all and every kind of work, labor, materials, articles and things whatsoever for the due construction and completion and will well and truly build and complete in a perfect and workmanlike manner the following, namely, the raising of the concrete culvert at Mileage 206 and the alteration to the Commission's bridge at Mileage 208.1 all on the main line of the Commission's railway in strict compliance with the specifications hereto annexed and with the plans and drawings relating thereto to the complete satisfaction of the Engineer and will deliver the whole of the said work to the Commission on or before the 9th day of September, 1914.

5. Time shall be of the essence of this agreement.

6. The said work shall be commenced immediately after the execution of this agreement and shall be proceeded with continuously and diligently and under the personal supervision of the Contractors until completed. The work shall be carried on and prosecuted in all its several parts in such a manner and at such points and places as the Chief Engineer shall from time to time direct and to his satisfaction, but always according to the provisions of this agreement, and if no direction is given then in a careful prompt and workmanlike manner, according to this agreement.

7. This agreement shall not be assigned, nor shall the said work or any part thereof be sub-contracted without the written consent of the Chief Engineer to every such assignment or sub-contract.

8. The Contractors shall in all things conform to and comply with the instructions of the Chief Engineer. Every facility shall at all times be given by the Contractors to the Chief Engineer and to any Engineer or Inspector appointed by him to examine and inspect the materials provided by the Contractors used or being used in the work and the work as done and being done and all orders of the Chief Engineer or the Engineer or Inspector as to the fitness or unfitness of the material or work shall be obeyed by the Contractors. All work and materials shall be subject to the approval of the Chief Engineer and any work or material which in the opinion of the Chief Engineer is not of the character, quality, dimensions or design required by the plans or specifications or which is in the

judgment of the Chief Engineer otherwise in any manner defective, imperfect or insufficient shall be replaced or remedied when pointed out to Contractors by the Chief Engineer and shall be made good and sufficient by the Contractors at their own expense and to the satisfaction of the Chief Engineer who shall have the power and whose duty is shall be to have any defective work or material taken out and rebuilt, or replaced at the expense of the Contractors. Any omission by the Chief Engineer to disapprove of or reject any insufficient or imperfect work at the time of any estimate shall not be deemed an acceptance of such work or material.

9. The Chief Engineer shall be at liberty at any time either before the commencement or during the construction of the work or any portion thereof, to order any extra work to be done, and to make any change or alteration which he may deem expedient in the alignment or grade of the railway or in the dimensions, nature, location or position of the works or of any part or parts thereof or in any other thing connected with the works whether or not such changes increase or diminish the work to be done or the cost of doing the same, and the Contractors shall immediately comply with all written directions of the Chief Engineer in that behalf, but the Contractors shall not make any change in or addition to or omission or deviation from the works and shall not be entitled to any payment for any change, addition, deviation or any extra work unless such change, addition, omission, deviation or extra work shall have been first directed in writing by the Chief Engineer and notified to the contractors in writing nor unless the price to be paid for any addition or extra work shall have been previously fixed by the Chief Engineer in writing, and the decision of the Chief Engineer as to whether any such change or deviation increases or diminishes the cost of the work and as to the amount to be paid or deducted as the case may be in respect thereof shall be final, and the obtaining of his decision in writing as to such amount shall be a condition precedent to the right of the Contractors to be paid therefor. If any such change or alteration shall in the opinion of the Chief Engineer materially affect the cost of doing the work, he shall affix or determine the price to be paid either above or below the prices hereinbefore provided to be paid for such work, as the case may be, so as to do substantial justice to both parties, and his decision as to the amount to be fixed for the price of such work shall be final.

10. All the clauses of this agreement shall apply to any changes, additions, omissions, deviations or extra work in like manner and to the same extent as to works contracted for and no changes, additions, deviations, omissions or extra work shall annul or invalidate this agreement.

11. If any change or deviation in or omission from the works be made by which the amount of work to be done shall be decreased, no compensation shall be claimable by the Contractors for any loss of anticipated profits in respect therefor.

12. All claims for extra work or material must be presented to the Chief Engineer for allowance at the end of the month in which the same shall have been done or furnished, and shall, if allowed by the Chief Engineer, be included in the estimate for that month, otherwise all claims therefor shall be deemed to be absolutely waived by the Contractors and the Commission shall not be

required to allow or pay for the same unless in the judgment of the Commission under the circumstances of the case it is reasonable and proper to do so.

13. The Chief Engineer shall be the sole judge of work and material in respect of both quantity and quality, and his decision on all questions in dispute with regard to work or material shall be final and no work or extra or additional works or changes shall be deemed to have been executed nor shall the Contractors be entitled to be paid for the same unless the same shall have been executed to the satisfaction of the Chief Engineer as evidenced by his certificate in writing. This certificate shall be a condition precedent to the right of the Contractors to be paid therefor.

14. The Commission shall have the right to suspend operations from time to time at any particular point or points or upon the whole of the work or to direct that the force employed on the work shall be diminished and the Contractors upon being requested in writing so to do by the Commission shall stop the work or reduce the force as the case may be in accordance with such written request, and the Contractors shall have no claim for damage by reason thereof. Such writing shall be signed by the Chief Engineer and delivered to the Contractors or to some person on the work representing the Contractors at least three days previous to such stoppage of work or reduction of force.

15. The Contractors shall not have nor make any claim or demand or bring any action against the Commission for any damage which they may sustain by reason of any delay in the progress of the work, arising from the acts of any of the Commission's agents and it is agreed that in the event of any such delay the Contractors shall have such further time for the completion of the works as may be fixed in that behalf by the Chief Engineer.

16. No delay within or beyond the period herein specified for completing the said work shall vitiate or void this agreement or any part thereof, or the obligation hereby imposed upon the Contractors or shall make void or in any wise impair or affect any current or other bond or security for the performance of this agreement, and all the covenants and agreements in this agreement and in the said specifications contained shall apply to this agreement and to the said work until the said work is finally completed and accepted, notwithstanding the fact that such work is not completed within the time specified herein for such completion.

17. The Contractors shall be at the risk of and shall bear all loss or damage whatsoever from whatsoever cause arising which may occur to the works or any of them until the same shall be fully and finally completed and delivered up to and accepted by the Commission; and if any such loss or damage shall occur before such final completion, delivery and acceptance, the Contractors shall immediately at their own expense, repair, restore and re-execute the work so damaged.

18. The Contractors and their agents, laborers and all others employed by them or under their control shall use due care that no person or property is injured or any rights infringed in the prosecution of the said work, and the

Contractors shall be responsible for and will pay all damages claimable by any person or corporation whatsoever in respect of any injury to persons or property or in respect of any infringement of any right whatsoever including damage by fire, occasioned in their carrying on of the said works or by any neglect or misfeasance or nonfeasance on their part or on the part of their servants or employees, and shall and will at their own expense make such temporary provisions as may be necessary for the protection of persons and of lands, buildings, animals or other property or to prevent the interruption of the traffic on any private or public road, or for the uninterrupted enjoyment of all rights of persons or corporations in and during the performance of the said works.

19. In case any sum due for the labor of any foreman, workman or laborer or for the use of any plant employed upon or in respect of the said works or any of them or the price of any materials or supplies purchased for account of the Contractors for the said work remains unpaid, the Chief Engineer shall notify the Contractors to pay such sum and if two days elapse and the same be not paid the Commission may pay such sum and the Contractors covenant with the Commission to repay at once any and every sum so paid and if the Contractors do not repay the same within two days the Commission may deduct the amount or amounts so paid by it from any sum that may then or may thereafter be or become due by the Commission to the Contractors.

20. The Contractors hereby authorize and empower the Commission or its solicitors to defend, settle or compromise any action or suit claim, lien or demand which may be brought against the Commission for or by reason of any act or default of the Contractors as the Commission or its solicitors may deem expedient, and the Contractors hereby agree to ratify and confirm all the said acts of the Commission or its Solicitors in that behalf and to pay to the said Solicitors on demand their reasonable costs of defending such suits or claims as they may deem it expedient to defend, and that such costs together with any damages so settled or agreed upon by the Commission or its Solicitors and any claimant or the amount of any judgment recovered against the Commission in the premises will forthwith upon the same being ascertained be paid by the Contractors and in default of their paying the said damages and costs or any portion thereof on demand, the same may be deducted from any moneys payable by the Commission to the Contractors on any account whatever and the balance thereof if any may be recovered from the Contractors as money paid to their use.

21. The Contractors shall not bring nor permit to be brought anywhere on or near the said work any spirituous or intoxicating liquors and if any foreman, laborer or other employee of the Contractors shall in the opinion of the Chief Engineer be intemperate, disorderly, incompetent, wilfully negligent or dishonest in the performance of his duties, he shall on the direction of the Chief Engineer be forthwith discharged and the Contractors shall not employ or permit to remain upon the work any person who shall have been discharged from the said work for any or all of the said causes.

22. In consideration of the faithful performance by the Contractors of all and singular the covenants and agreements herein contained the Commission hereby covenants and agrees with the Contractors that it will well and truly pay

them on the full completion by them of all the work to be done under this agreement in the manner and within the time herein specified and limited for the completion thereof to the satisfaction of and subject to the acceptance by the Chief Engineer and subject also as herein provided, the following sums and prices, namely:

(1) Work in connection with alterations to Culvert at M.P. 206.

Excavation per cubic yard, at	50
New Concrete built in per cubic yard, at	7 75
Old Concrete removed per cubic yard, at	4 00
Steel reinforcing in place per pound, at	06
Piles driven per lineal ft., at	35
Timber shoreing per thousand, at	38 00
Bracing per thousand, at	38 00
Struts per lineal ft., at	07
Timber in Hogsback per thousand, at	40 00

(2) Work in connection with alterations to Bridge at M.P. 208.1.

Excavation per cubic yard, at	1 00
Concrete encasing sway bracing per cubic yd., at	10 00
Other Concrete per cubic yard, at	7 50
Piles driven under piers per lineal ft., at	40
Piles driven in breakwater per lineal ft., at	35
Cedar Bracing for breakwater per thousand, at	38 00

23. Approximate estimate of the work done, made up from returns of progress measurements, and computed at the prices determined or agreed upon under the provisions of this agreement are to be made by the Engineer at the end of each calendar month, and on or about the twentieth day of the next ensuing month payments equal to about ninety per cent. of the value of the work done, as shown by such approximate monthly estimate shall be made to the Contractors upon presentation of the written certificate of the Chief Engineer that the work for or on account of which the certificate is granted has been duly performed and executed to his satisfaction and stating the value of such work computed as mentioned and upon approval of such certificate by the Commission and the said certificate and such approval thereto shall be a condition precedent to the right of the Contractors to be paid the said ninety per cent. or any part thereof. The remaining ten per cent. shall be retained by the Commission until the final completion of the whole work as an additional security for the performance of this agreement by the Contractors and when in the opinion of the Chief Engineer this agreement has been completely performed in accordance with the provisions thereof and until the Chief Engineer shall be satisfied that all wages of all workmen, laborers and servants of the Contractors and of all sub-contractors under them, as well as the price of all materials and supplies made, procured or provided for the Contractors or for any of the sub-contractors have been duly paid, he shall certify the same accordingly in writing under his hand with a final estimate of the work done by the Contractors and with a statement of the amount due and unpaid and within two months after the granting of such certificates the amount so found due and unpaid shall be paid to the Contractors upon delivery to the Commission of a good and valid release and discharge of and from any and all claims and demands for and in respect

of all matters and things growing out of or connected with this agreement or the subject matter thereof. The written certificate of the Chief Engineer certifying to the final completion of the work to his entire satisfaction and of the evidence called for by this clause having been furnished to him shall be a condition precedent to the right of the Contractors to receive or be paid the amount certified by the Chief Engineer as due and unpaid or any part thereof and the certificate of the Chief Engineer shall be conclusive as to the amount to be paid to the Contractors.

24. It is intended that every allowance to which the Contractors are fairly entitled will be embraced in the Chief Engineer's monthly certificates, but should the Contractors at any time have claims of any description which they consider are not included in the progress certificates, it will be necessary for them to make and repeat such claims in writing to the Chief Engineer within thirty days after the date of the despatch to the Contractors of each and every certificate in which they allege such claims to have been omitted.

25. The Contractors in presenting claims of the kind referred to in the last preceding paragraph must accompany them with satisfactory evidence of their accuracy and the reason why they think they should be allowed. Unless such claims are thus made during the progress of the work within thirty days as in the preceding clause and repeated in writing every month until finally adjusted or rejected, the Contractors shall have no claim upon the Commission in respect thereof.

26. The progress measurements and progress certificates shall not in any respect be taken as binding upon the Commission or the Chief Engineer or as final measurements or as fixing final amounts; they are to be subject to the revision of the Chief Engineer in making up his final certificates and they shall not in any respect be taken as an acceptance of the work or release of the Contractors from responsibility in respect thereof, but they shall at the conclusion of the work deliver over the same in good order, according to the true intent and meaning of this agreement.

27. In order to prevent disputes or misunderstandings between the parties hereto in relation to any of the stipulations and provisions contained in this agreement, the interpretation of the true intent or meaning thereof or the manner of performance thereof or of any part thereof by either of the said parties and for the speedy settlement of such as may occur, the Chief Engineer shall be and he is hereby made, constituted and appointed sole umpire to decide all such questions and matters including any arising regarding the amount and quantity, character and kind of work performed and material furnished by the Contractors and all extra work and material. It is expressly declared and agreed that the Chief Engineer shall be entitled from time to time in reference to any or all matters whether of interpretation or otherwise arising from this contract or the said specifications or plans or relating in any manner to said work, to take legal or other professional advice and to accept and act upon such advice to such extent as to him shall seem proper, including consultation with and accepting advice or assistance from any Consulting Engineer employed by the Commission whether such Consulting Engineer shall or shall not be a member of the Commission. The decisions of the Chief Engineer which may from time

to time be given on all questions in dispute shall be final, binding and conclusive upon both parties hereto, and no decision or certificate given by the Chief Engineer shall be questioned or set aside by either party hereto on account of any legal defect therein or on account of any informality, omission, delay or error in proceeding in or about the same or upon any other grounds or for any other reason or upon any pretence, suggestion, charge or insinuation of fraud or collusion or confederacy and no objection shall be raised to any decision of the Chief Engineer in the premises or to any certificate given by him on the ground that he is in the employ of either party and is acting for or in the interest of such party or on pretence that by reason of any order or statement he may have made during the progress of the work, he has disqualified himself to act between the parties hereto as above provided in all matters which may arise as aforesaid, but actual fraud only shall disqualify the Chief Engineer from acting as aforesaid, and the parties hereto covenant and agree each with the other to accept each and all decision and abide by the same as final and conclusive.

28. The Contractors will protect and will not remove or destroy or permit to be removed or destroyed the stakes, bayous or other marks placed on or about the said works by any engineer of the works, and shall furnish the necessary assistance to correct or replace any stake, or mark which through any cause may have been removed or destroyed.

29. The Commission shall have power at any time to enter upon the said works to execute any work or works not included in this agreement, and the Contractors shall afford all such reasonable facilities for doing such work as the Chief Engineer shall direct or require.

30. All mechanics, laborers or other persons who perform labor in the construction of the works hereby contracted for shall be paid such wages as are generally accepted as current for competent workmen in the district in which the work is being performed, and if there is no current rate in such district, then a fair and reasonable rate and in the event of a dispute arising as to what is the current or a fair and reasonable rate, it shall be determined by the Commission whose decision shall be final.

31. All the works carried on under this agreement shall be subject to the provisions of any Act respecting the preservation of health on public works and to all regulations made or to be hereafter made pursuant to any such Act or by any other lawful authority, and applicable to such works, and to any regulations which may be adopted by the Commission in reference to sanitation or the preservation of health on the said work or any part thereof.

32. The Contractors shall observe and comply with all regulations made by any lawful authority and with all regulations of the Commission and instructions from the Chief Engineer from time to time made or given with reference to the prevention and extinguishing of fires, and shall pay all wages and other outlay occasioned by such regulations and instructions.

33. As security for the due performance, execution and completion of this contract by the Contractors, the Contractors shall upon the execution hereof deposit with the Commission the sum of fifteen hundred dollars ($1,500).

34. It is distinctly declared that no implied contract of any kind whatsoever by or on behalf of the Commission shall arise or be implied from anything contained in this contract including the said specifications, tender, plans and drawings or from any position or situation of the parties at any time, it being clearly understood and agreed that the express contracts, covenants, agreements and stipulations upon which any rights against the Commission are to be founded, and it being further expressly agreed that in case of any discrepancy between these presents and anything contained in the said specifications the provisions of these presents shall govern. In case of any discrepancy appearing at any time between the specifications, profiles, plans, drawings and detailed drawings or any of them the Contractors shall follow such one of them as the Chief Engineer shall in writing direct.

In WITNESS WHEREOF the Contractors have hereunto set their hands and seals and the Commission has affixed its Corporate Seal under the hands of its proper officers in that behalf.

SIGNED, SEALED AND DELIVERED in the presence of	W. M. Clarke.
	L. O. Clarke.
	Temiskaming and Northern
G. H. Dickson.	Ontario Railway Commission.
	J. L. Englehart.
	A. J. McGee.

TENDERS FOR HARD COAL (ANTHRACITE).

Following tenders received:

Jas. Sowards Coal Co., Kingston.
Delaware, Lackawanna & Western Coal Co., Buffalo.
Lehigh Valley Coal Sales Co., Buffalo.
Ayers & Lang, Detroit.
Delaware & Hudson Coal Co., Scranton, Pa.
Sterling Coal Co., Toronto.
W. H. Cox Coal Co., Toronto.

All tenders, $4.87 per net ton for May shipments, or $5.45 per gross ton with increase 10c. per gross ton until September, reaching maximum price $5.85 for balance of year, with exception of W. H. Cox Coal Co., who quoted $5.43 per gross ton, May shipments, with increase 10c. per gross ton, until September.

Prices, f.o.b. International Bridge.

Contract awarded W. H. Cox Coal Company.

TENDERS FOR SOFT COAL (BITUMINOUS).

Following tenders received on 100,000 tons Mine Run Coal, 1914-15:

	F.O.B. Bridge.
American Steel Co., Pittsburg, Pa.	$2 25
Goff, Kirby Coal Co., Cleveland, O. (F.O.B., North Bay)	3 60
Pilling & Crane, Philadelphia, Pa.	2 87
Jas. Sowards Coal Co., Kingston	2 10
Standard Fuel Co., Toronto	2 15
Henry W. Somers, Albany, N.Y.	2 10
C. L. Amos Coal Co., Syracuse, N.Y.	2 00
Empire Coal Co., Montreal	2 15
F. P. Weaver Coal Co., Toronto	2 10
J. Bert Ross, Buffalo, N.Y.	2 10
J. H. Hillman & Sons, Pittsburg, Pa.	2 15
Panther Run Coal Co., Pardus, Pa.	2 05
Pittsburg & Westmoreland Coal Co., Pittsburg, Pa.	2 45
Lindsay & McCluskey, North Bay	3 80
Ford Colliers Co., Detroit, Mich.	2 22½
Keystone Coal & Coke Co., Buffalo, N.Y.	2 10
Youghiogheny & Ohio Coal Co., Buffalo, N.Y.	2 45
W. A. Stone & Co., Buffalo, N.Y.	2 07½
Widnoon Coal Co., Buffalo, N.Y. (Widnoon Mine)	2 10
Widnoon Coal Co., Buffalo, N.Y. (Reynoldsville)	2 04
Sterling Coal Co., Toronto (Port Stanley)	2 00
Sterling Coal Co., Toronto, (Int. Bridge)	2 15
Pittsburg-Buffalo Co., Pittsburg, Pa.	2 20
Morlock Colliers Co., Buffalo, N.Y.	2 02½
Rail River Coal Co., Cleveland, O. (F.O.B. North Bay)	4 10
Fred. A. Fish, Toronto (Logansport Mine)	2 08½
Fred. A. Fish, Toronto (Pryor-Penobscott Mine)	2 30
Fred. A. Fish, Toronto (Fredericktown Mine)	2 40
Buffalo & Susquehanna Coal & Coke Co., Buffalo, N.Y	2 01

Although tender Buffalo & Susquehanna Coal Co. $2.01, not lowest (one being $2.00) in view of excellent service and general satisfaction during past three years, contract awarded Buffalo & Susquehanna Coal Co.

MEMORANDUM OF AGREEMENT made this 22nd day of May, in the year of our Lord, 1914.

BETWEEN:

BUFFALO AND SUSQUEHANNA COAL AND COKE COMPANY of Buffalo, N.Y., hereinafter called the "Contractors."

and

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the "Commission."

1. Subject to the terms hereof the Contractors agree to sell to the Commission, and the Commission agrees to buy from the Contractors, one hundred thousand net tons run of mine coal of Sagamore Mine, at the price of two dollars and one cent per net ton (two thousand pounds) on board cars, International Bridge, Black Rock, N.Y.—delivery as required up to June 1st. 1915, and subject to the provisions hereinafter stated.

2. The Contractors absolutely guarantee (*a*) that all coal to be delivered under this contract shall be suitable for the purposes of the railway of the Commission, and (*b*) shall on analysis in manner hereinafter provided prove to be at least equal to the following which is agreed to be the standard analysis:

Moisture	1.25
Hydro Carbons	32.75
Fixed Carbons	58.25
Ash	7.75
	100.00

Sulphur 1.3 to 1.6.

3. Samples for purposes of analysis may be taken (so far as deemed necessary by the Commission) from each carload of coal on or at any time after the arrival thereof at North Bay, and may be so taken at any point on the railway of the Commission, and such sample shall consist of not less than twenty-five pounds of lump and slack in the same relative proportion as appears in the shipment, to be taken from carload by the Superintendent, the Master Mechanic, or the Storekeeper, of the Commission, and any sample so taken shall be conclusively presumed to be a fair sample for purposes of analysis of such carload, and the certificate of Milton L. Hersey, Analyst and Chemist, of Montreal, as to whether such sample answers the aforesaid guarantee (*b*) of the Contractors shall be absolutely final, binding and conclusive upon both parties as to whether the carload from which such sample has been taken answers such guarantee.

4. In case of analysis as aforesaid if any carload of coal delivered under this contract shall be found below standard quality as shown by analyst's certificate as aforesaid, the Commission shall be at liberty to reject such carload or the portion of it not used, notwithstanding that delivery of same may theretofore have been taken; notwithstanding that the necessary entries for passing same through the customs may have been made, and notwithstanding that same may have been unloaded or stored or wholly or partly paid for or otherwise dealt with, and thereupon the same shall be at the risk of and shall be deemed for all purposes to be the property of the Contractors who shall forthwith remove and take delivery of same and repay to the Commission all moneys which the Commission may have paid in respect thereof, whether for freight, duties, cost of analysis, storage, unloading or any other charges or expenses, and if the Commission shall heretofore have paid the price or any part thereof, the Contractors shall forthwith repay the same. IT BEING HOWEVER EXPRESSLY AGREED THAT the aforesaid right of the Commission to reject any coal so delivered shall be in addition to all its other legal rights and remedies in the premises and not in the substitution for same or any of them.

5. Should coal at any time delivered under this contract whether analyzed as aforesaid or not and irrespective of the result of such analysis prove in the opinion of the Master Mechanic or Superintendent of the Commission unsuitable for the purposes of the railway of the Commission, the Commission may at its option by notice in writing to the Contractors cancel and annul this contract as to any coal not heretofore shipped without prejudice to the liability of the Contractors for any breaches of this contract.

6. Beginning with the month of June, 1914, there shall be shipped by the Contractors from the mines, properly consigned to the Commission at North Bay

Junction, and with all freight and other charges prepaid to International Bridge, Black Rock, N.Y., approximately seven cars per day, subject to the increase or diminution from time to time of the daily shipments and shall be required by written notice by letter or telegram from the Storekeeper of the Commission at North Bay to the Contractors at Buffalo, such notice to be duly sent from North Bay at least one week prior to the week to the shipments of which such notice shall apply. Coal will be sold at initial manifest weights which shall be binding and no claim shall be allowed for short weights except in the case of unusual loss by reason of defective cars. Provided and required that twenty-five per cent. of daily shipments of said coal be delivered in flat bottomed cars.

7. The Commission shall further have the right at any time to cancel its purchase hereunder to the extent of not more than ten per cent. of the quantity of coal covered by this contract, in which case such ten per cent. or less proportion as the case may be, shall be taken from the last deliveries herein agreed upon.

8. If, during the continuance of this contract, the Commission is unable to make use of the said coal by reason of strike, destruction or disability of its railway or any part thereof, the Commission shall have the right during the continuance of such disability at its option to discontinue taking coal in the quantities herein specified.

9. It is also understood that should Contractors encounter strikes, accidents, shut-downs at the mines from reasons beyond their control, they shall not be expected to deliver on this contract during the period of suspension.

10. At the time of each shipment the Contractor shall send to the Storekeeper of the Commission at North Bay five correct copies of invoice of the coal covered by such a consignment charged at the price of two dollars and one cent per ton as aforesaid, two of which copies shall be duly certified as required by the Canadian Customs Law.

11. Payments shall be made by the Commission to the Contractor in Toronto funds, for all coal delivered to the Commission at North Bay in any one month, on or before the 20th day of the following month.

12. This contract shall inure to the benefit of and be binding upon the successors and assigns of the parties respectively.

AS WITNESS the corporate seals of the said parties under the hands of the proper officers in that behalf.

WITNESS as to signature:

BUFFALO & SUSQUEHANNA COAL & COKE CO.,
(Sgd.) J. W. TROUNCE,
General Sales Agent.

TEMISKAMING AND NORTHERN ONTARIO RY. COM'N.,
(Sgd.) J. L. ENGLEHART,
President.

A. B. ODLUM.

(Sgd.) A J. MCGEE,
Secretary-Treasurer.

(Seal.)

TENDERS FOR HEATING SYSTEM—THREE NO. 2 STANDARD STATIONS.

F. R. Gibson	$1,547 00
Drake-Avery Company	2,380 00
S. J. Cherry	1,638 00
Farrell	1,613 00

Contract awarded to F. R. Gibson.

MEMORANDUM OF AGREEMENT made in duplicate this 30th day of August, in the year of our Lord, one thousand nine hundred and fourteen.

BETWEEN:

F. R. GIBSON, of the Town of Haileybury, in the District of Nipissing, Esquire, hereinafter called the Contractor,

and

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WITNESSETH:

1. In this contract the word "work" or "works" shall, unless the context requires a different meaning, mean the whole of the work and materials, matters and things required to be done furnished and performed under this contract. The word "engineer" shall mean the Chief Engineer for the time being appointed by the Commission and having control over the work.

2. The Contractor will at his own expense provide all and every kind of work, labor, materials, articles and things whatsoever for the due construction, installation, completion, and will well and truly build and complete in a perfect and workmanlike manner the whole of the hot water heating systems in each of the Commission's standard No. 2 stations situate on the Commission's line of railway at Elk Lake and Heaslip respectively, and in the Commission's No. 10 station situate on the Commission's line of railway at Iroquois Falls, in strict compliance with the specifications hereto annexed above mentioned and relating to each class of station, and with the plans and drawings relating thereto to the complete satisfaction of the Engineer.

3. The Contractor shall forthwith commence work and shall proceed diligently therewith at the rate required by the Engineer and shall complete the work, including extras and alterations and notwithstanding any delay or hindrance by the Commission, to the satisfaction of the Engineer by the date set out in the last preceding paragraph, or by such other date as on the written application of the Contractor for an extension of time the Engineer may in writing substitute, and in default shall pay to the Commission by way of liquidated damages the sum of twenty-five dollars for each day which shall or may elapse after the date mentioned in the last preceding paragraph, or the date expressly substituted therefor in manner aforesaid by the Engineer until the whole work shall be so completed and delivered.

4. The Engineer shall be at liberty at any time, either before the commencement or during construction of the works or any portion thereof, to order any extra work to be done and to make any change which he may deem expedient in the dimensions, character, nature, location or position of the works or any part or parts thereof or in any other things connected with the works, whether or not such changes increase or diminish the work to be done or the cost of doing the same, and the Contractor shall immediately comply with all requisitions of the Engineer in that behalf and shall commence and complete the work so ordered to be done within the time specified by the Engineer, but the Contractor shall not make any change in or addition to or omission or deviation from the work and shall not be entitled to any payment for any change, addition, deviation or any work unless such change, addition, omission, deviation or extra work, shall have been first directed in writing by the Engineer and notified to the Contractor, and the decision of the Engineer as to whether any such change or deviation increases or diminishes the work and as to the allowance to be made to the Contractor or deducted from the Contractor in respect of any such increase or diminution, shall be final and all the provisions of this contract shall apply to any changes, additions, deviations or extra work in like manner and to the same extent as to the work tendered for, and no changes, additions, deviations or extra work shall annul or invalidate this contract and no compensation shall be claimable by the contractor for any loss of anticipated profits in respect of or in consequence of any change or deviation in or omission from the works.

5. The Engineer shall be the sole judge of the work and material in respect of both quantity and quality, and his decision on all matters in dispute in respect to work and material shall be final, and no works or extra or additional works or changes shall be deemed to have been executed, nor shall the Contractor be entitled to payment for the same unless the same shall have been directed in writing as hereinbefore provided and executed to the satisfaction of the Engineer, as evidenced by his certificate in writing which certificate shall be a condition precedent to the right of the Contractor to be paid therefor.

6. The Contractor shall be at the risk of and shall bear all loss or damage whatsoever which may occur to the works or any of them until the same be fully and finally completed and delivered up to and accepted by the Commission, and if any such loss or damage occur before such time for completion, delivery and acceptance, the Contractor shall immediately, at his own expense, repair, restore and re-execute the work so damaged so that the whole works or the respective parts thereof will be completed within the time hereby limited.

7. In case the Contractor shall make default or delay in diligently continuing to execute or advance any of the works to be performed under this contract to the satisfaction of the Engineer, or shall make default in commencing any portion or portions of the work or complete same within the periods specified by the Engineer, as provided for in section 3 of this contract, and such default and delay shall continue for six days after notice in writing shall have been given by the Engineer to the Contractor requiring him to put an end to such default or delay, or in case the Contractor shall become insolvent or shall without the written consent of the Commission make an assignment of this contract, or shall without the written consent of the Engineer make any subcontract or neglect personally to superintend the works, then and in any of such cases the Commission may take all the work

under this contract out of the Contractor's hands and employ such means as it may see fit to complete the work embraced in the contract, and in such case the Contractor shall have no claim for any further payment in respect of the work performed, but all things done and means employed under this section by the Commission shall be as binding on the Contractor as if the things done and means employed had been done and employed by him under this contract, but the Contractor shall nevertheless remain liable for all loss or damage which shall be suffered by the Commission by reason of the non-completion by the Contractor of the works, and no question or claim shall be raised or made by the Contractor by reason of or on account of the ultimate cost of the work so taken over proving greater than in the opinion of the Contractor it should have been, and all materials, articles and things whatsoever, and all machinery and other plant provided by the Contractor for the purposes of the work shall remain and be considered as the property of the Commission for the purposes of the said works and the Commission may at its option sell or otherwise dispose of the whole or a portion of such materials, articles and things whatsoever, machinery and other plant and may retain the proceeds of such sale or disposition or a sufficient part thereof on account of or in satisfaction of any loss which it may have sustained by reason aforesaid.

8. Neither the acceptance nor the payment for the said heating systems or any part thereof by the Commission shall be construed as any waiver of the obligations of the Contractor with reference thereto.

9. The Commission in consideration of the premises covenants with the Contractor that the Contractor from time to time, and in all respects having fulfilled and performed the provisions of this contract on the Contractor's part intended to be fulfilled and performed will be paid for, and in respect of said hot water heating systems installed in each of said Standard No. 2 Stations the sum of five hundred and fifteen dollars and sixty-seven cents ($515.67), and for and in respect of said hot water heating system installed in said No. 10 Station the sum of eight hundred and sixteen dollars and fifty cents ($816.50), making a total of eighteen hundred and forty-seven dollars and eighty-four cents ($1,847.84) for the whole of the work covered by this contract subject to such deductions or additions as shall be certified by the Engineer, payments to be made from time to time on progress certificates of the Engineer, and the final payment to be made within forty days after the date of the Engineer's final certificate of the completion of the work.

10. It is distinctly declared that no implied contract of any kind whatsoever, by or on behalf of the Commission, shall arise or be implied from anything contained in this contract including the said specifications, tender, plans and drawings, or from any position or situation of the parties at any time, it being clearly understood and agreed that the express contracts, covenants, agreements and stipulations upon which any of the rights against the Commission are to be founded, and it being further expressly agreed that in case of any discrepancy between these presents and anything contained in the said specifications the provisions of these presents shall govern. In case of any discrepancy appearing at any time between the specifications, plans, drawings and detailed drawings or any of them, the Contractor shall follow such one of them as the Chief Engineer shall in writing direct.

IN WITNESS WHEREOF the Contractor has hereunto set his hand and seal and the Commission has affixed its Corporate Seal under the hands of its proper officers in that behalf.

SIGNED, SEALED AND DELIVERED in the presence of—

GEO. HOLLAND.

F. R. GIBSON.

TEMISKAMING AND NORTHERN ONTARIO RY. COM'N,

J. L. ENGLEHART,
Chairman.

A. J. MCGEE,
Secretary-Treasurer

BOND NO. 710914.

KNOW ALL MEN BY THESE PRESENTS THAT WE, F. R. GIBSON, of the Town of Haileybury, in the District of Nipissing, Contractor, (hereinafter called the Principal) and THE LONDON GUARANTEE AND ACCIDENT COMPANY, a corporation entitled to transact business in the Province of Ontario (hereinafter called the Surety) are held and firmly bound unto THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, (hereinafter called the Obligee) in the full and just sum of THREE HUNDRED AND FIFTY DOLLARS ($350) of lawful money of Canada for the payment of which sum well and truly to be made the said principal and the said surety each binds themselves, their heirs, executors, administrators and assigns respectively, jointly and severally firmly by these presents.

Signed, sealed and delivered by the principal at Haileybury, Ontario, this third day of September, 1914.

WHEREAS the said principal has entered into a written contract hereto annexed with the Obligee for the construction, installation and completion of the hot water heating systems in each of the Obligee's Standard No. 2 Stations, situate at Elk Lake and Heaslip respectively, and in the Obligee's No. 10 Station at Iroquois Falls, all on the line of the Obligee's Railway.

NOW THEREFORE the condition of the foregoing obligation is such that if the said principal, his heirs, executors, administrators and assigns do and shall well and faithfully do all the work and furnish all the materials and observe and perform all the matters and things required to be furnished, observed and performed by him under said contract hereunto annexed within the times, in the manner and according to the true intent and meaning of said contract THEN this obligation shall be void; otherwise, the same shall remain in full force and virtue, PROVIDED HOWEVER that this Bond is issued subject to the following conditions and provisions:

1. THAT no liability shall attach to the Surety hereunder unless in the event of any default on the part of the principal in the performance of any of the terms, covenants or conditions of the said contract, the obligee shall promptly, on knowledge thereof by its secretary and in any event not later than thirty days after such knowledge of default by its secretary, deliver to the Surety at its office in the City

of Toronto, written notice thereof with a statement of the principal facts showing such default and the date thereof, nor unless said Obligee shall deliver written notice to the Surety at its office aforesaid and the consent of the Surety aforesaid thereto obtained before making to the Principal the final payments provided for under said contract.

2. THAT in case of such default hereunder of the Principal the Surety shall have the right if it so desires to assume and complete or procure the completion of said contract, and in case of such default the Surety shall be subrogated and entitled to all the rights of the Principal arising out of the said contract, and otherwise including all securities and indemnities if any theretofore received by the Obligee, and all deferred payments, retained percentages and credits due to the Principal at the time when the Surety shall have assumed said contract or to become due thereafter by the terms and dates of the contract.

3. THAT in no event shall the Surety be liable for any greater sum than the penalty of this bond or subject to any suit, action or proceeding therein that is instituted later than the 3rd day of September, 1915.

IN TESTIMONY WHEREOF the said Principal has hereunto set his hand and seal, and the said Surety has caused these presents to be executed under its corporate seal and the hands of its proper officers in that behalf the day and year first above written.

SIGNED, SEALED AND DELIVERED in the presence of—

(Sgd.) GEO. HOLLAND.

(Sgd.) F. R. GIBSON.

(Seal.)

LONDON GUARANTEE AND ACCIDENT Co., Limited.

(Sgd.) D. W. ALEXANDER,
Manager for Canada.

TENDERS RE CULVERT AND BRIDGE ABUTMENTS.

Tenders called for following work:

Arch Culvert at M.P. 42.18.
Sub-structure for steel bridge at M.P. 48.9.
Sub-structure for steel bridge at M.P. 58.75.
Sub-structure for steel bridge at M.P. 59.41.

Following tenders received:

Frank Munro	$7,353 25
Sherwood & Sherwood	10,925 00
E. McCool	13,642 50
V. Scappature	18,515 00
H. S. McAuslan	17,565 00

Contract awarded Frank Munro for full work.

MEMORANDUM OF AGREEMENT made in duplicate this 26th day of June in the year of our Lord, one thousand nine hundred and fourteen.

BETWEEN:

F. MUNRO, of the City of Montreal, in the Province of Quebec, Esquire, hereinafter called the Contractor,

and

THE TEMISKAMING & NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WITNESSETH AS FOLLOWS:

In consideration of the covenants and agreements hereinafter contained and to be performed by the Commission and of the price hereinafter mentioned, the Contractor hereby covenants and agrees with the Commission as follows:

1. In this agreement the word "work" or "works" shall, unless the context requires a different meaning, mean the whole of the work and materials, matters and things required to be done, furnished and performed by the Contractor under this agreement.

2. The words "Engineer" or "Chief Engineer," when used in this agreement or in the specifications hereinafter mentioned, shall mean the Chief Engineer of the Temiskaming and Northern Ontario Railway Commission for the time being acting as such either directly or through the Assistant Chief Engineer, Division Engineer, Assistant Engineer, Resident Engineer, or Inspector, having immediate charge of the work or of that portion thereof limited by the particular duties entrusted to him. All instructions and directions or certificates given or decisions made by anyone acting under the authority of the Chief Engineer shall be subject to his approval and may be cancelled, altered, modified and changed as he may see fit. In all cases where the Contractors are dissatisfied with the decision of the Engineer or Inspector in immediate charge of the work, an appeal to the Chief Engineer may be made. It is declared and agreed that it shall not be in

the power of the Chief Engineer or of any Engineer or Inspector to waive any of provisions of this agreement, and no waiver of any such shall on any pretence be claimed by the Contractor.

3. Whenever in this agreement it is stipulated that anything shall be done or performed by either of the parties hereto. it shall have the same effect and be construed as if the said party had thereby entered into a covenant with the other party to do or perform the same, and that any such covenant had been expressly made and entered into not only by, for or on behalf of the parties hereto respectively, but also by, for and on behalf of their respective executors, administrators, successors and assigns, as the case may be.

4. The Contractor will at his own expense provide all and every kind of work, labor, materials, articles and things whatsoever for the due construction and completion, and will well and truly build and complete in a perfect and workmanlike manner the following, namely: One ten foot culvert at mileage 42.18, the abutments and piers for two concrete bridges at mileage 58.75 and mileage 59.41 respectively, and the concrete abutments for a steel bridge at mileage 48.9, all on the main line of the Commission's railway in strict compliance with the specifications hereto annexed and with the plans and drawings relating thereto to the complete satisfaction of the Engineer, and will deliver the whole of said work complete to the Commission on or before the 31st day of August, 1914.

5. Time shall be the essence of this agreement.

6. The said work shall be commenced immediately after the execution of this agreement and, shall be proceeded with continuously and diligently and under the personal supervision of the Contractor until completed. The work shall be carried on and prosecuted in all its several parts in such a manner and at such points and places as the Chief Engineer shall from time to time direct and to his satisfaction, but always according to the provisions of this agreement, and if no direction is given, then in a careful, prompt and workmanlike manner, according to this agreement.

7. This agreement shall not be assigned, nor shall the said work or any part thereof be sub-contracted without the written consent of the Chief Engineer to every such assignment or sub-contract.

8. The Contractor shall in all things conform to and comply with the instructions of the Chief Engineer. Every facility shall at all times be given by the Contractor to the Chief Engineer and to any Engineer or Inspector appointed by him to examine and inspect the materials provided by the Contractor used or being used in the work and the work as done and being done, and all orders of the Chief Engineer or the Engineer or Inspector as to the fitness or unfitness of the material or work shall be obeyed by the Contractor. All work and materials shall be subject to the approval of the Chief Engineer, and any work or material which in the opinion of the Chief Engineer is not of the character, quality, dimensions or design required by the plans or specifications, or which is in the judgment of the Chief Engineer otherwise in any manner defective, imperfect or insufficient, shall be replaced or remedied when pointed out to the Contractor by the Chief Engineer, and shall be made good and sufficient by the Contractor at his own expense and to

the satisfaction of the Chief Engineer, who shall have the power and whose duty it shall be to have any defective work or material taken out and rebuilt, or replaced at the expense of the Contractor. Any omission by the Chief Engineer to disapprove of or reject any insufficient or imperfect work at the time of any estimate shall not be deemed an acceptance of such work or material.

9. The Chief Engineer shall be at liberty at any time either before the commencement or during the construction of the work or any portion thereof, to order any extra work to be done, and to make any change or alteration which he may deem expedient in the alignment or grade of the railway, or in the dimensions, nature, location or position of the works or of any part or parts thereof, or in any other thing connected with the works whether or not such changes increase or diminish the work to be done or the cost of doing the same, and the Contractor shall immediately comply with all written directions of the Chief Engineer in that behalf, but the Contractor shall not make any change in or addition to or omission or deviation from the works, and shall not be entitled to any payment for any change, addition, deviation or any extra work unless such change, addition, omission, deviation or extra work shall have been first directed in writing by the Chief Engineer and notified to the Contractor in writing, nor unless the price to be paid for any addition or extra work shall have been previously fixed by the Chief Engineer in writing, and the decision of the Chief Engineer as to whether any such change or deviation increases or diminishes the cost of the work and as to the amount to be paid or deducted as the case may be in respect thereof shall be final, and the obtaining of his decision in writing as to such amount shall be a condition precedent to the right of the contractor to be paid therefor. If any such change or alteration shall in the opinion of the Chief Engineer materially affect the cost of doing the work he shall affix or determine the price to be paid either above or below the prices hereinbefore provided to be paid for such work, as the case may be, so as to do substantial justice to both parties, and his decision as to the amount to be fixed for the price of such work shall be final.

10. All the clauses of this agreement shall apply to any changes, additions, omissions, deviations or extra work in like manner and to the same extent as to works contracted for, and no changes, additions, deviations, omissions or extra work shall annul or invalidate this agreement.

1. If any change or deviation in or omission from the works be made by which the amount of work to be done shall be decreased, no compensation shall be claimable by the Contractor for any loss of anticipated profits in respect therefor.

12. All claims for extra work or material must be presented to the Chief Engineer for allowance at the end of the month in which the same shall have been done or furnished, and shall, if allowed by the Chief Engineer, be included in the estimate for that month, otherwise all claims therefor shall be deemed to be absolutely waived by the Contractor, and the Commission shall not be required to allow or pay for the same unless in the judgment of the Commission under the circumstances of the case it is reasonable and proper to do so.

13. The Chief Engineer shall be the sole judge of work and material in respect of both quantity and quality, and his decision on all questions in dispute with regard to work or material shall be final, and no work or extra or additional works

or changes shall be deemed to have been executed, nor shall the Contractor be entitled to be paid for the same unless the same shall have been executed to the satisfaction of the Chief Engineer as evidenced by his certificate in writing. This certificate shall be a condition precedent to the right of the Contractor to be paid therefor.

14. The Commission shall have the right to suspend operations from time to time at any particular point or points or upon the whole of the work, or to direct that the force employed on the work shall be diminished, and the Contractor, upon being requested in writing so to do by the Commission, shall stop the work or reduce the force as the case may be in accordance with such written request, and the Contractor shall have no claim for damage by reason thereof. Such writing shall be signed by the Chief Engineer and delivered to the Contractor or to some person on the work representing the Contractor at least three days previous to such stoppage of work or reduction of force.

15. The Contractor shall not have nor make any claim or demand or bring any action against the Commission for any damage which they may sustain by reason of any delay in the progress of the work, arising from the acts of any of the Commission's agents, and it is agreed that in the event of any such delay the Contractor shall have such further time for the completion of the works as may be fixed in that behalf by the Chief Engineer.

16. No delay within or beyond the period herein specified for completing the said work shall vitiate or void this agreement or any part thereof, or the obligation hereby imposed upon the Contractor, or shall make void or in any wise impair or affect any current or other bond or security for the performance of this agreement, and all the covenants and agreements in this agreement and in the said specifications contained shall apply to this agreement and to the said work until the said work is finally completed and accepted, notwithstanding the fact that such work is not completed within the time specified herein for such completion.

17. The Contractor shall be at the risk of and shall bear all loss or damage whatsoever from whatsoever cause arising which may occur to the works or any of them until the same shall be fully and finally completed and delivered up to and accepted by the Commission; and if any such loss or damage shall occur before such final completion, delivery and acceptance, the Contractor shall immediately at his own expense repair, restore and re-execute the work so damaged.

18. The Contractor and his agents, laborers and all others employed by him or under his control shall use due care that no person or property is injured or any rights infringed in the prosecution of the said work, and the Contractor shall be responsible for and will pay all damages claimable by any person or corporation whatsoever in respect of any injury to persons or property or in respect of any infringement of any right whatsoever including damage by fire, occasioned in his carrying on of the said works or by any neglect or misfeasance or nonfeasance on his part or on the part of his servants or employees, and shall and will at his own expense make such temporary provisions as may be necessary for the protection of persons and of lands, buildings, animals or other property, or to prevent the interruption of the traffic on any private or public road, or for the uninterrupted enjoy-

ment of all rights of persons or corporations, in and during the performance of the said works.

19. In case any sum due for the labor of any foreman, workman or laborer, or for the use of any plant employed upon or in respect of the said works or any of them, or the price of any materials or supplies purchased for account of the Contractor for the said work, remains unpaid, the Chief Engineer shall notify the Contractor to pay such sum, and if two days elapse and the same be not paid the Commission may pay such sum, and the Contractor covenants with the Commission to repay at once any and every sum so paid, and if the Contractor does not repay the same within two days the Commission may deduct the amount or amounts so paid by it from any sum that may then or may thereafter be or become due by the Commission to the Contractor.

20. The Contractor hereby authorizes and empowers the Commission or its solicitors to defend, settle or compromise any action or suit, claim, lien or demand, which may be brought against the Commission for or by reason of any act or default of the Contractor as the Commission or its solicitors may deem expedient, and the Contractors hereby agree to ratify and confirm all the said acts of the Commission or its solicitors in that behalf and to pay to the said solicitors on demand their reasonable costs of defending such suits or claims as they may deem it expedient to defend, and that such costs, together with any damages so settled or agreed upon by the Commission or its solicitors and any claimant, or the amount of any judgment recovered against the Commission in the premises will forthwith upon the same being ascertained be paid by the Contractor, and in default of his paying the said damages and costs or any portion thereof on demand, the same may be deducted from any moneys payable by the Commission to the Contractor on any account whatever, and the balance thereof, if any, may be recovered from the Contractor as money paid to his use.

21. The Contractor shall not bring nor permit to be brought anywhere on or near the said work any spirituous or intoxicating liquors, and if any foreman, laborer or other employee of the Contractor shall in the opinion of the Chief Engineer be intemperate, disorderly, incompetent, wilfully negligent or dishonest in the performance of his duties, he shall, on the direction of the Chief Engineer, be forthwith discharged and the Contractor shall not employ or permit to remain upon the work any person who shall have been discharged from the said work for any or all of the said causes.

22. In consideration of the faithful performance by the Contractor of all and singular the covenants and agreements herein contained the Commission hereby covenants and agrees with the Contractor that it will well and truly pay him on the full completion by him of all the work to be done under this agreement in the manner and within the time herein specified and limited for the completion thereof to the satisfaction of and subject to acceptance by the Chief Engineer, and subject also as herein provided, the following sums and prices, namely:

(1) *Excavation*—	
Solid Rock per cubic yard	$1 50
Loose Rock per cubic yard	75
All other material	75
(2) *Piles*—	
Piles driven per lineal ft.	30
Piles delivered per lineal ft.	17½
(3) *Concrete*—	
Per cubic yard (1:3:5)	6 80
Per cubic yard (1:2:4)	7 00

23. It is understood and agreed that the classifications "piles driven per lineal foot" and "piles delivered per lineal foot" included in the schedule of prices in the preceding paragraph hereof are inserted with two objects: (*a*) To furnish a basis for guidance of the Engineer in granting progress certificates. (*b*) To fix price of piling properly delivered under the authority of the Engineer, but not afterwards included in "piles delivered." As to all piles ultimately driven and allowed for under the classification "piles driven" the price so allowed shall be deemed to include the price allowed in respect of such piling under the classification "piles delivered."

24. Approximate estimates of the work done, made up from returns of progress measurements and computed at the prices determined, or agreed upon under the provisions of this agreement are to be made by the Engineer at the end of each calendar month, and on or about the twentieth day of the next ensuing month payments equal to about ninety per cent. of the value of the work done, as shewn by such approximate monthly estimate shall be made to the Contractor upon presentation of the written certificate of the Chief Engineer that the work for or on account of which the certificate is granted has been duly performed and executed to his satisfaction, and stating the value of such work computed as mentioned and upon approval of such certificate by the Commission and the said certificate and such approval thereto shall be a condition precedent to the right of the Contractor to be paid the said ninety per cent. or any part thereof. The remaining ten per cent. shall be retained by the Commission until the final completion of the whole work as an additional security for the performance of this agreement by the Contractor, and when in the opinion of the Chief Engineer this agreement has been completely performed in accordance with the provisions thereof, and until the Chief Engineer shall be satisfied that all wages of all workmen, laborers and servants of the Contractor and of all sub-contractors under him, as well as the price of all materials and supplies made, procured or provided for the Contractor or for any of the sub-contractors have been duly paid, he shall certify the same accordingly in writing, under his hand, with a final estimate of the work done by the Contractor and with a statement of the amount due and unpaid, and within two months after the granting of such cerificate the amount so found due and unpaid shall be paid to the Contractor upon delivery to the Commission of a good and valid release and discharge of and from any and all claims and demands for and in respect of all matters and things growing out of or connected with this agreement or the subject matter thereof. The written certificate of the Chief Engineer certifying to the final completion of the work to his entire satisfaction and of the evidence called for by this clause having been furnished to him shall be a condition precedent to the right of the Contractor to receive or be paid the amount certified by the Chief Engineer as due and unpaid, or any part thereof, and the certificate of the Chief Engineer shall be conclusive as to the amount to be paid to the Contractor.

25. It is intended that every allowance to which the Contractor is fairly entitled will be embraced in the Chief Engineer's monthly certificates; but should the Contractor at any time have claims of any description which he considers are not included in the progress certificates, it will be necessary for him to make and repeat such claims in writing to the Chief Engineer within thirty days after the date of the despatch to the Contractor of each and every certificate in which he alleges such claims to have been omitted.

26. The Contractor in presenting claims of the kind referred to in the last preceding paragraph must accompany them with satisfactory evidence of their accuracy and the reason why he thinks they should be allowed. Unless such claims are thus made during the progress of the work, within thirty days as in the preceding clause, and repeated in writing every month until finally adjusted or rejected, the Contractor shall have no claim upon the Commission in respect thereof.

27. The progress measurements and progress certificates shall not in any respect be taken as binding upon the Commission or the Chief Engineer, or as final measurements, or as fixing final amounts: they are to be subject to the revision of the Chief Engineer in making up his final certificates, and they shall not in any respect be taken as an acceptance of the work or release of the Contractor from responsibility in respect thereof, but he shall at the conclusion of the work deliver over the same in good order, according to the true intent and meaning of this agreement.

28. In order to prevent disputes or misunderstandings between the parties hereto in relation to any of the stipulations and provisions contained in this agreement, the interpretation of the true intent or meaning thereof, or the manner of performance thereof, or of any part thereof by either of the said parties and for the speedy settlement of such as may occur, the Chief Engineer shall be and he is hereby made, constituted and appointed sole umpire to decide all such questions and matters, including any arising regarding the amount and quantity, character and kind of work performed and material furnished by the Contractor, and all extra work and material. It is expressly declared and agreed that the Chief Engineer shall be entitled from time to time in reference to any or all matters, whether of interpretation or otherwise, arising from this contract or the said specifications or plans, or relating in any manner to said work, to take legal or other professional advice and to accept and act upon such advice to such extent as to him shall seem proper, including consultation with and accepting advice or assistance from any Consulting Engineer employed by the Commission, whether such Consulting Engineer shall or shall not be a member of the Commission. The decisions of the Chief Engineer which may from time to time be given on all questions in dispute shall be final and binding and conclusive upon both parties hereto, and no decision or certificate given by the Chief Engineer shall be questioned or set aside by either party hereto on account of any legal defect therein or on account of any informality, omission, delay or error in proceeding in or about the same, or upon any other grounds, or for any other reason, or upon any pretence, suggestion, charge or insinuation of fraud or collusion or confederacy, and no objection shall be raised to any decision of the Chief Engineer in the premises, or to any certificate given by him, on the ground that he is in the employ of either party and is acting for or in the interest of such party, or on pretence that by reason of any order or statement he may have made during the progress of the work he has disqualified himself to act between the parties hereto as above provided in all matters which may arise as aforesaid, but actual fraud only shall disqualify the Chief Engineer from acting as aforesaid, and the parties hereto covenant and agree each with the other to accept each and all decisions and abide by the same as final and conclusive.

29. The Contractor will protect and will not remove or destroy or permit to be removed or destroyed the stakes, buoys and other marks placed on or about the

said works by any engineer of the works and shall furnish the necessary assistance to correct or replace any stake or mark which through any cause may have been removed or destroyed.

30. The Commission shall have power at any time to enter upon the said works to execute any work or works not included in this agreement, and the Contractor shall afford all such reasonable facilities for doing such work as the Chief Engineer shall direct or require.

31. All mechanics, laborers or other persons who perform labor in the construction of the works hereby contracted for shall be paid such wages as are generally accepted as current for competent workmen in the district in which the work is being performed, and if there is no current rate in such district, then a fair and reasonable rate, and in the event of a dispute arising as to what is the current or a fair and reasonable rate, it shall be determined by the Commission, whose decision shall be final.

32. All the works carried on under this agreement shall be subject to the provisions of any Act respecting the preservation of health on public works and to all regulations made or to be hereafter made pursuant to any such Act, or by any other lawful authority, and applicable to such works, and to any regulations which may be adopted by the Commission in reference to sanitation or the preservation of health on the said work or any part thereof.

33. The Contractor shall observe and comply with all regulations made by any lawful authority, and with all regulations of the Commission and instructions from the Chief Engineer from time to time made or given with reference to the prevention and extinguishing of fires, and shall pay all wages and other outlay occasioned by such regulations and instructions.

34. It is distinctly declared that no implied contract of any kind whatsoever by or on behalf of the Commission shall arise or be implied from anything contained in this contract, including the said specifications, tender, plans and drawings, or from any position or situation of the parties at any time, it being clearly understood and agreed that the express contracts, covenants, agreements and stipulations upon which any rights against the Commission are to be founded, and it being further expressly agreed that in case of any discrepancy between these presents and anything contained in the said specifications, the provisions of these presents shall govern. In case of any discrepancy appearing at any time between the specifications, profiles, plans, drawings and detailed drawings or any of them, the Contractor shall follow such one of them as the Chief Engineer shall in writing direct.

IN WITNESS WHEREOF the Contractor has hereunto set his hand and seal, and the Commission has affixed its corporate seal under the hands of its proper officers in that behalf.

Signed, sealed and delivered.

W. I. JOHNSTON.

F. MUNRO.

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION.

J. L. ENGLEHART,
Chairman.

A. J. McGEE,
Secretary-Treasurer.

KNOW ALL MEN BY THESE PRESENTS that we, F. MUNRO, of the City of Montreal, in the Province of Quebec, Contractor, hereinafter called the Principal, and UNITED STATES FIDELITY & GUARANTY CO., a corporation created and existing under the laws of the State of Maryland, whose principal office is located in Baltimore, in the State of Maryland, duly registered under the laws of the Dominion of Canada and entitled to transact business therein, hereinafter called the Surety, are held and firmly bound unto the Temiskaming and Northern Ontario Railway Commission, hereinafter called the Obligee, in the full and just sum of two thousand dollars ($2,000) of lawful money of Canada, for the payment of which sum well and truly to be made the said Principal and the said Surety each binds themselves, their heirs, executors, administrators and assigns respectively, jointly and severally firmly by these presents.

SIGNED, SEALED AND DELIVERED by the Principal at North Bay, Ontario, this 29th day of July, 1914, and by the said Surety at Toronto, Canada, this 30th day of July, 1914.

WHEREAS the said Principal has entered into the written contract hereto annexed with the Obligee for the construction and erection of one ten-foot concrete culvert at mileage 42.18, the abutments and piers for two concrete bridges at mileage 58.75 and mileage 59.41 respectively, and the concrete abutments for a steel bridge at mileage 48.9, all on the main line of the Commission's railway.

NOW THEREFORE the condition of the foregoing obligation is such that if the said Principal, his heirs, executors, administrators and assigns do and shall well and faithfully do all the work and furnish all the materials and observe and perform all the matters and things required to be done, furnished, observed and performed by him under the said contract hereunto annexed within the times, in the manner and according to the true intent and meaning of the said contract, then this obligation shall be void, otherwise the same shall remain in full force and virtue; PROVIDED, HOWEVER, that this bond is issued subject to the following conditions and provisions.

1. That no liability shall attach to the surety hereunder unless in the event of any default on the part of the principal in the performance of any of the terms, covenants or conditions of the said contract the obligee shall promptly on knowledge thereof by its Secretary, and in any event not later than thirty days after such knowledge of default by its Secretary, deliver to A. E. Kirkpatrick, of Toronto,

Canadian Agent of the said surety, at his office in the City of Toronto, written notice thereof with a statement of the principal facts showing such default and the date thereof, nor unless said obligee shall deliver written notice to the Agent of the surety at his office aforesaid, and the consent of the surety or its agent aforesaid thereto obtained before making to the principal the final payments provided for under said contract.

2. That in case of such default hereunder of the principal the surety shall have the right if it so desires to assume and complete or procure the completion of said contract, and in case of such default the surety shall be subrogated and entitled to all the rights of the principal arising out of the said contract and otherwise, including all securities and indemnities, if any, theretofore received by the obligee, and all deferred payments retained, percentages and credits due to the principal at the time when the surety shall have assumed said contract or to become due thereafter by the terms and dates of the contract.

3. That in no event shall the surety be liable for any greater sum than the penalty of this bond, or subject to any suit, action or proceeding therein that is instituted later than the 31st day of August, 1914.

IN TESTIMONY WHEREOF the said principal has hereunto set his hand and seal, and the said surety has caused these presents to be executed by its attorney in fact, sealed with its corporate seal, the day and year first above written.

THE UNITED STATES FIDELITY & GUARANTY CO.,

A. E. KIRKPATRICK,

Manager and Attorney for Canada.

W. I. JOHNSTON. F. MUNRO.

TEMISKAMING AND NORTHERN ONTARIO RAILWAY.

FORM OF TENDER

For 10′ 0″ Concrete Culvert at M.P. 42.18.

(I) the undersigned hereby offer to the Temiskaming and Northern Ontario Railway Commission to furnish all the necessary materials, labor, tools and other plant, and to execute and complete in a satisfactory and workmanlike manner all the works required in connection with the construction of a 10′ 0″ Concrete Culvert at M.P. 42.18, situated along the line of the Temiskaming and Northern Ontario Railway, in accordance with the plans and specifications exhibited to (me) for the following unit prices.

1. *Excavation.*

Solid Rock, per cubic yard	$1 50
Loose Rock, per cubic yard	75
All other material, per cubic yard	75

2. *Piles.*

Piles driven, per lin. ft.	30
Piles delivered, per lin. ft.	17½

3. *Concrete.*

Per cubic yard (1:3:5)	6 80
Per cubic yard (1:2:4)	7 00

(I) further hold (myself) ready to enter promptly into a contract in form satisfactory to the Commission for the due execution of the said work at the rates and on the terms herein stated, and to furnish security for the due performance of the contract for *Five Hundred Dollars* ($500), with two approved securities.

(I) herewith enclose an accepted bank cheque for *Three Hundred Dollars* ($300), payable to the order of the Secretary-Treasurer of the Commission, and it is hereby agreed in case of failure on (my) part to execute the said contract and to furnish a satisfactory bond within thirty days after the acceptance of this tender. the said cheque shall be forfeited as liquidated damages for such failure.

I hereby certify that I have examined the site of the proposed work or have caused it to be visited and examined by a competent person in my behalf, and have made all necessary inquiries relative to the value of the materials required for the work and the amount of work to be done under the specifications.

(Signed) F. MUNRO.
Post Office Address: 36 Coristine Building, Montreal.

DATED AT MONTREAL, this 14th day of May, 1914.

NOTE.—Envelopes containing this tender are to be endorsed "Tender for 10′ 0″ Concrete Culvert at M.P. 42.18," and addressed to

S. B. CLEMENT,

Chief Engineer & Supt. of Maintenance,

T. & N. O. Rly.,

North Bay, Ont.

TENDERS FOR STATIONS AND SECTION HOUSES.

Tenders called for following work:

3 Standard No. 1 Section Houses.
2 Standard No. 3 Section Houses.
3 Standard No. 2 Stations.

Quotations:

Messrs Sherwood & Sherwood	$28,699 80
W. A. Caddell, Haileybury J. Armstrong, North Bay J. W. Sewell, North Bay	30,772 95

Contract awarded Messrs. Sherwood & Sherwood for full work.

MEMORANDUM OF AGREEMENT made in duplicate this tenth day of June, in the year of our Lord one thousand nine hundred and fourteen.

BETWEEN:

J. G. SHERWOOD AND C. H. SHERWOOD, both of the Town of Sudbury, in the District of Nipissing, carrying on business under the firm name and style of Sherwood & Sherwood, hereinafter called the Contractors,

and

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WITNESSETH:

1. In this contract the word "work" or "works" shall, unless the context requires a different meaning, mean the whole of the work and materials, matters and things required to be done, furnished and performed under this contract. The word "Engineer" shall mean the Chief Engineer for the time being appointed by the Commission and having control over the work.

2. The Contractors will at their own expense provide all and every kind of work, labor, materials, articles and things whatsoever for the due construction and completion, and will well and truly build and complete in a perfect and workmanlike manner, three standard number two passenger stations at or adjoining Elk Lake, Iroquois Falls and Heaslip respectively, on the line of railway of the Commission in such positions as the Engineer may direct, in strict compliance with the specifications hereto annexed, and with the plans and drawings relating thereto and to the complete satisfaction of the Engineer and will deliver the said passenger stations completed to the Commission on or before the 31st day of August, 1914, time being agreed to be material and of the essence of this contract.

3. The Contractors shall forthwith commence work and shall proceed diligently therewith at the rate required by the Engineer and shall complete the work, including extras and alterations, and notwithstanding any delay or hindrance by the Commission to the satisfaction of the Engineer by the date set out in the last

preceding paragraph, or by such other date as on the written application of the Contractors for an extension of time the Engineer may in writing substitute, and in default shall pay to the Commission by way of liquidated damages the sum of $20.00 for each day which shall or may elapse after the date mentioned in the last preceding paragraph, or the date expressly substituted therefor in manner aforesaid by the Engineer until the whole work shall be completed and delivered.

4. The Engineer shall be at liberty at any time either before the commencement or during the construction of the works or any portion thereof to order any extra work to be done and to make any changes which he may deem expedient in the dimensions, character, nature, location or position of the works or any part or parts thereof, or in any other things connected with the works whether or not such changes increase or diminish the work to be done or the cost of doing the same, and the Contractors shall immediately comply with all requisitions of the Engineer in that behalf and shall commence and complete the work so ordered to be done within the time specified by the Engineer, but the Contractors shall not make any change in or addition to or omission or deviation from the work and shall not be entitled to any payment for any change, addition, deviation or any extra work unless such change, addition, omission, deviation or extra work shall have been first directed in writing by the Engineer and notified to the Contractors, and the decision of the Engineer as to whether any such change or deviation increases or diminishes the work, and as to the allowance to be made to the Contractors or deducted from the Contractors in respect of any such increase or diminution shall be final and all the provisions of this contract shall apply to any changes, additions, deviations or extra work in like manner and to the same extent as to the work tendered for, and no changes, additions, deviations or extra work shall annul or invalidate this contract, and no compensation shall be claimable by the Contractors for any loss of anticipated profits in respect of or in consequence of any change or deviation in or omission from the works.

5. The Engineer shall be the sole judge of the work and material in respect of both quantity and quality, and his decision in all matters in dispute in respect to work and material shall be final, and no works or extra or additional works or changes shall be deemed to have been executed nor shall the Contractors be entitled to payment for the same unless the same shall have been directed in writing as hereinbefore provided and executed to the satisfaction of the Engineer, as evidenced by this certificate in writing which certificate shall be a condition precedent to the right of the Contractors to be paid therefor.

6. The Contractors shall be at the risk of and shall bear all loss or damage whatsoever which may occur to the works or any of them until the same be fully and finally completed and delivered up to and accepted by the Commission, and if any such loss or damage occur before such completion, delivery and acceptance the Contractors shall immediately, at their own expense, repair, restore and re-execute the work so damaged so that the whole works or the respective parts thereof will be completed within the time hereby limited.

7. The Contractors shall not at any time in connection with said work or any matter arising out of or connected with this contract employ any person or persons in contravention of the Alien Labor Act or the provisions of the Railway Act of Ontario respecting the employment of alien labor, and shall pay to all workmen, laborers and servants employed in or about the work such rates of wages as shall or

may be currently payable to workmen, laborers and servants engaged in similar occupations in the district in which said work shall be performed, and shall be responsible for the observance by all sub-contractors on their part of the provisions of this clause, and in the event of the Commission, who shall be the sole absolute and final judge of these matters, being satisfied at any time that the Contractors or any sub-contractor have been guilty of any violation of any of the provisions of this clause the Commission shall have the right from time to time, and as often as it shall be satisfied that any such violation has taken place, to withhold all payments from the Contractors until any such violation of any of the provisions of this clause shall in the opinion of the Commission have ceased and until such amends as the Commission shall require shall have been made for all such violations, and on being notified by the Commission of any such violation it shall be the duty of the Engineer to withhold all certificates from the Contractors until the Commission shall be satisfied that such violation has ceased and until amends shall have been made to the satisfaction of the Commission as aforesaid.

8. The Commission shall be entitled to hold as security for the due performance and completion of this contract by the Contractors for the sum of one thousand five hundred dollars ($1,500) cash deposit made by the Contractors with their tender, which said sum of one thousand five hundred dollars together with bank interest thereon shall be returned to the Contractors by the Commission upon completion of the work in accordance with the covenants, terms and conditions of this agreement.

9. In consideration of the faithful performance by the Contractors of all and singular the covenants and agreements herein contained, the Commission hereby covenants and agrees with the Contractors that it will well and truly pay them on the full completion by them of all the work to be done under this agreement in the manner and within the time hereby specified and limited for the completion thereof to the satisfaction of and subject to acceptance by the Chief Engineer and subject also as herein provided, the following sums and prices, namely:

1. For each passenger station complete above foundation.....$3,608.80
and the following unit prices for the different works required to construct and complete the foundations.

2. *Excavation*:

Solid rock per cubic yard	3.00
Loose rock per cubic yard	1.00
All other materials per cubic yard	.65

3. *Drainage*:

Supplying and laying 6 inch vitrified drain per lin. ft.	.20

4. *Concrete*:

Per cubic yard (1; 2: 4:)	9.00
Per cubic yard (1: 3: 5:)	8.00

5. *Platform.*

White pine per M. FRM	35.00
Cedar mud sills per M. FRM	26.00

subject to such deductions or additions as shall be certified by the Engineer based on the prices shown in the Contractors' tender for said work, copy of which is hereto annexed; payments to be made from time to time on proper certificate of the Engineer and the final payment to be made within forty days after the date of the Engineer's final certificate of the completion of the said contract.

10. It is distinctly agreed that no implied contract of any kind whatsoever by or on behalf of the Commission shall arise or be implied from anything contained in this contract including the said specifications, plans and drawings or the tender of the said Contractors for said work or from any position or situation of the parties at any time, it being clearly understood and agreed that the express contracts, covenants, agreements and stipulations contained in these presents and in the said specifications, plans and drawings are and shall be the only contracts, covenants, agreements and stipulations upon which any right of action against the Commission is to be founded; it being further expressly agreed that the said specifications and these presents are to be read together and in case of any discrepancy between these presents and anything contained in such specifications the provisions of these presents shall govern, and in case of any discrepancy appearing at any time between the specifications, plans and drawings or any of them the Contractors shall follow such one of them as the Engineer shall in writing direct.

AS WITNESS the hand and seals of the said Contractors, and the corporate seal of the said Commission under the hands of its proper officers in that behalf.

SIGNED, SEALED AND DELIVERED in the presence of:

G. H. DICKSON,
for J. G. SHERWOOD.

A. C. MORGAN,
for C. H. SHERWOOD.

J. G. SHERWOOD,
C. H. SHERWOOD.

TEMISKAMING AND NORTHERN ONTARIO RY. COM'N,

J. L. ENGLEHART,
Chairman,

A. J. McGEE,
Secretary-Treasurer.

TEMISKAMING AND NORTHERN ONTARIO RAILWAY

FORM OF TENDER

For Standard No. 2 Station.

We the undersigned, hereby offer to the Temiskaming and Northern Ontario Railway Commission to furnish all the necessary materials, labor, tools and other plant and to execute and complete in a satisfactory and workmanlike manner all the works required in connection with the construction of three (3) more or less, Standard No. 2 Stations, situated along the line of the Temiskaming and Northern Ontario Railway in accordance with the plans and specifications exhibited to us for the following prices:

1. Lump sum for each building complete above foundations .. $3,608.80
   and the following unit prices for the different works required to construct and complete the foundations and areaways.

2. *Excavation.*

Solid rock per cubic yard	3.00
Loose rock per cubic yard	1.00
All other materials per cubic yard	.65

3. *Drainage.*

Supplying and laying 6 in. vitrified drain per lineal foot ..	.20

4. *Concrete.*

Per cubic yard (1; 2: 4)	9.00
Per cubic yard (1; 3; 5)	8.00

5. *Platform.*

White pine per M. F.B.M.	35.00
Cedar mud mills per M. F.B.M.	26.00

We further hold ourselves ready to enter promptly into a contract in form satisfactory to the Commission for the due execution of the said work at the rates and on the terms herein stated, and to furnish security for the due performance of the contract by bond for one thousand five hundred dollars ($1.500.00) with two approved securities.

We herewith enclose an accepted bank cheque for seven hundred and fifty dollars ($750.00) payable to the order of the Secretary-Treasurer of the Commission, and it is hereby agreed that in case of failure on our part to execute the said contract and to furnish a satisfactory bond within thirty days after the acceptance of this tender, the said cheque shall be forfeited as liquidated damages for such failure.

We hereby certify that we have examined the site of the proposed work or have caused it to be visited and examined by a competent person on our behalf.

and have made all necessary enquiries relative to the value of the materials required for the work and the amount of work to be done under the specifications.

(Signed) SHERWOOD & SHERWOOD,
per J. G. SHERWOOD,

Post Office Address,
Sudbury, Ont.

DATED at Sudbury this 14th day of May, 1914.

NOTE: Envelopes containing this tender are to be endorsed "Tender for Standard No. 2 Station," and addressed to

S. B. CLEMENT,
Chief Engineer and Supt. of Maintenance,
T. & N. O. Railway,
North Bay, Ont.

MEMORANDUM OF AGREEMENT made in duplicate this tenth day of June, in the year of our Lord one thousand nine hundred and fourteen.

BETWEEN:

J. G. SHERWOOD and C. H. SHERWOOD both of the Town of Sudbury in the District of Nipissing, carrying on business under the firm, name and style of Sherwood & Sherwood, hereinafter called the Contractors.

—and—

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WITNESSETH:

1. In this contract the word "work" or "works" shall, unless the context requires a different meaning mean the whole of the work and materials, matters and things required to be done, furnished and performed under this contract. The word "Engineer" shall mean the Chief Engineer for the time being appointed by the Commission and having control over the work.

2. The Contractors will at their own expense provide all and every kind of work, labor, materials, articles and things whatsoever for the due construction and completion, and will well and truly build and complete in a perfect and workmanlike manner three standard number one section houses at or adjoining Charlton, South Porcupine and Timmins respectively, on the line of railway of the Commission in such positions as the Engineer may direct, in strict compliance with the specifications hereto annexed and with the plans and drawings relating thereto and to the complete satisfaction of the Engineer, and will deliver the said section houses complete to the Commission on or before the 31st day of August, 1914, time being agreed to be material and of the essence of this contract.

3. The Contractors shall forthwith commence work and shall proceed diligently therewith at the rate required by the Engineer and shall complete the work, including extras and alterations, and notwithstanding any delay or hindrance by the Commission to the satisfaction of the Engineer by the date set out in the last preceding paragraph or by such other date as on the written application of the Contractors for an extension of time, the Engineer may in writing substitute and in default shall pay to the Commission by way of liquidated damages the sum of $20.00 for each day which shall or may elapse after the date mentioned in the last preceding paragraph, or the date expressly substituted therefor in manner aforesaid by the Engineer until the whole work shall be completed and delivered.

4. The Engineer shall be at liberty at any time either before the commencement or during the construction of the works or any portion thereof to order any extra work to be done and to make any changes which he may deem expedient in the dimensions, character, nature, location or position of the works or any part or parts thereof or in any other things connected with the works whether or not such changes increase or diminish the work to be done or the cost of doing the same, and the Contractors shall immediately comply with all requisitions of the Engineer in that behalf and shall commence and complete the work so ordered to be done within the time specified by the Engineer, but the Contractors shall not make any change in or addition to, or omission or deviation from the work and shall not be entitled to any payment for any change, addition, deviation or any extra work unless such change, addition, omission, deviation or extra work shall have been first directed in writing by the Engineer and notified to the Contractors, and the decision of the Engineer as to whether any such change or deviation increases or diminishes the work and as to the allowance to be made to the Contractors or deducted from the Contractors in respect of any such increase or diminution shall be final and all the provisions of this contract shall apply to any changes, additions, deviations or extra work in like manner and to the same extent as to the work tendered for, and no changes, additions, deviations or extra work shall annul or invalidate this contract and no compensation shall be claimable by the Contractors for any loss of anticipated profits in respect of or in consequence of any change or deviation in or omission from the works.

5. The Engineer shall be the sole judge of the work and material in respect of both quantity and quality, and his decision on all matters in dispute in respect to work and material shall be final and no works or extra or additional works or changes shall be deemed to have been executed, nor shall the Contractors be entitled to payment of the same unless the same shall have been directed in writing as hereinbefore provided and executed to the satisfaction of the Engineer as evidenced by his certificate in writing which certificate shall be a condition precedent to the right of the Contractors to be paid therefor.

6. The Contractors shall be at the risk of, and shall bear all loss or damage whatsoever which may occur to the works or any of them until the same be fully and finally completed and delivered up to and accepted by the Commission and if any such loss or damage occur before such completion, delivery and acceptance, the Contractors shall immediately at their own expense repair, restore and re-execute the work so damaged so that the whole works or the respective parts thereof will be completed within the time hereby limited.

7. The Contractors shall not at any time in connection with said work or any matter arising out of or connected with this contract, employ any person or persons in contravention of the Alien Labor Act or the provisions of the Railway Act of Ontario respecting the employment of alien labor and shall pay to all workmen, laborers and servants employed in or about the work such rates of wages as shall or may be currently payable to workmen, laborers and servants engaged in similar occupations in the district in which said work shall be performed and shall be responsible for the observance by all sub-contractors on their part of the provisions of this clause, and in the event of the Commission, who shall be the sole, absolute and final judge of these matters, being satisfied at any time that the Contractors or any sub-contractor have been guilty of any violation of any of the provisions of this clause the Commission shall have the right from time to time and as often as it shall be satisfied that any such violation has taken place to withhold all payments from the Contractors until any such violation of any of the provisions of this clause shall in the opinion of the Commission have ceased and until such amends as the Commission shall require shall have been made for all such violations, and on being notified by the Commission of any such violation it shall be the duty of the Engineer to withhold all certificates from the Contractors until the Commission shall be satisfied that such violation has ceased and until amends shall have been made to the satisfaction of the Commission as aforesaid.

8. The Commission shall be entitled to hold as security for the due performance and completion of this contract by the Contractors the sum of seven hundred and seventy-five dollars ($775.00) cash deposit made by the Contractors with their tender which said sum of seven hundred and seventy-five dollars, together with bank interest thereon shall be returned to the contractors by the Commission upon completion of the work in accordance with the covenants, terms and conditions of this agreement.

9. In consideration of the faithful performance by the Contractors of all and singular, the covenants and agreements herein contained, the Commission hereby covenants and agrees with the Contractors that it will well and truly pay them on the full completion by them of all the work to be done under this agreement in the manner and within the time hereby specified and limited for the completion thereof to the satisfaction of and subject to acceptance by the Chief Engineer and subject also as herein provided, the following sums and prices, namely:

1. For each section house complete above foundation $2,278.70
and the following unit prices for the different works required to construct and complete the foundations.

2. *Excavation.*

Solid rock per cubic yard	3.00
Loose rock per cubic yard	1.00
All other materials per cubic yard	.65

3. *Drainage.*

Supplying and laying 6 in. vitrified drain per lineal ft....	.20

4. *Concrete.*

Per cubic yard (1; 2; 4)	9.00
Per cubic yard (1; 3; 5)	8.00

subject to such deductions or additions as shall be certified by the Engineer based on the prices shown in the Contractors' tender for said work, copy of which is hereto annexed; payments to be made from time to time on proper certificate of the Engineer and the final payment to be made within forty days after the date of the Engineer's final certificate of the completion of the said contract.

10. It is distinctly agreed that no implied contract of any kind whatsoever by or on behalf of the Commission shall arise or be implied from anything contained in this contract including the said specifications, plans and drawings or the tender of the said Contractors for said work or from any position or situation of the parties at any time, it being clearly understood and agreed that the express contracts, covenants, agreements and stipulations contained in these presents, and in the said specifications, plans and drawings are and shall be the only contracts, covenants, agreements and stipulations upon which any right of action against the Commission is to be founded; it being further expressly agreed that the said specifications and these presents are to be read together and in case of any discrepancy between these presents and anything contained in such specifications, the provisions of these presents shall govern and in case of any discrepancy appearing at any time between the specifications, plans and drawings or any of them, the Contractors shall follow such one of them as the Engineer shall in writing direct.

AS WITNESS the hand and seals of the said Contractors and the Corporate seal of the said Commission under the hands of its proper officers in that behalf.

SIGNED SEALED AND DELIVERED in the presence of:

G. H. Dickson,
for J. G. Sherwood.

A. C. Morgan,
for C. H. Sherwood.

J. G. Sherwood.
C. H. Sherwood.

Temiskaming and Northern Ontario Railway Commission.

J. L. Englehart,
Chairman.

A. J. McGee,
Sec'y-Treasurer.

TEMISKAMING AND NORTHERN ONTARIO RAILWAY

FORM OF TENDER

For Standard No. 1 Section House.

We the undersigned, hereby offer to the Temiskaming and Northern Ontario Railway Commission to furnish all the necessary materials, labor, tools and other plant and to execute and complete in a satisfactory and workmanlike manner all the works required in connection with the construction of three (3) more or less, Standard No. 1 Section Houses, situated along the line of the Temiskaming and Northern Ontario Railway in accordance with the plans and specifications exhibited to us for the following prices:

1. Lump sum price for each building complete above foundations $2,278.70
   and the following unit prices for the different works required to construct and complete the foundations.

2. *Excavation.*
   Solid rock per cubic yard 3.00
   Loose rock per cubic yard 1.00
   All other materials per cubic yard ..... .65

3. *Drainage.*
   Supplying and laying 6 in. vitrified drain per lineal foot .. .20

4. *Concrete.*
   Per cubic yard (1; 2; 4) 9.00
   Per cubic yard (1; 3; 5) 8.00

We further hold ourselves ready to enter promptly into a contract in form satisfactory to the Commission for the due execution of the said work at the rates and on the terms herein stated, and to furnish security for the due performance of the contract by bond for seven hundred and seventy-five dollars ($775.00) with two approved securities.

We herewith enclose an accepted bank cheque for four hundred and fifty dollars ($450.00) payable to the order of the Secretary-Treasurer of the Commission, and it is hereby agreed in case of failure on our part to execute the said contract and to furnish a satisfactory bond within thirty days after the acceptance of this tender, the said cheque shall be forfeited as liquidated damages for such failure.

We hereby certify that we have examined the site of the proposed work or have caused it to be visited and examined by a competent person on our behalf, and have made all necessary enquiries relative to the value of the materials required for the work and the amount of work to be done under the specifications.

Post Office Address,
Sudbury, Ont.

(Signed) SHERWOOD & SHERWOOD,
per J. G. SHERWOOD,

DATED at Sudbury this 14th day of May, 1914.

NOTE: Envelopes containing this tender are to be endorsed "Tender for Standard No. 1 Section House," and addressed to

S. B. CLEMENT,
Chief Engineer and Supt. of Maintenance,
T. & N. O. Railway,
North Bay, Ont.

MEMORANDUM OF AGREEMENT made in duplicate this tenth day of June, in the year of our Lord one thousand nine hundred and fourteen.

BETWEEN:

J. G. SHERWOOD and C. H. SHERWOOD both of the Town of Sudbury in the District of Nipissing, carrying on business under the firm, name and style of Sherwood & Sherwood, hereinafter called the Contractors.

—and—

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WITNESSETH:

1. In this contract the word "work" or "works" shall, unless the context requires a different meaning mean the whole of the work and materials, matters and things required to be done, furnished and performed under this contract. The word "Engineer" shall mean the Chief Engineer for the time being appointed by the Commission and having control over the work.

2. The Contractors will at their own expense provide all and every kind of work, labor, materials, articles and things whatsoever for the due construction and completion and will well and truly build and complete in a perfect and workmanlike manner two standard number three section houses at or adjoining Iroquois Falls and Timmins, respectively, on the line of railway of the Commissions in such positions as the Engineer may direct, in strict compliance with the specifications hereto annexed, and with the plans and drawings relating thereto, and to the complete satisfaction of the Engineer, and will deliver the said section houses complete to the Commission on or before the 31st day of August, 1914, time being agreed to be material and of the essence of this contract.

3. The Contractors shall forthwith commence work and shall proceed diligently therewith at the rate required by the Engineer and shall complete the work, including extras and alterations, and notwithstanding any delay or hindrance by the Commission to the satisfaction of the Engineer by the date set out in the last preceding paragraph or by such other date as on the written application of the Contractors for an extension of time, the Engineer may in writing substitute and in default shall pay to the Commission by way of liquidated damages the sum of $20.00 for each day which shall or may elapse after the date mentioned in the last preceding paragraph, or the date expressly substituted therefor in manner aforesaid by the Engineer until the whole work shall be completed and delivered.

4. The Engineer shall be at liberty at any time either before the commencement or during the construction of the works or any portion thereof to order any extra work to be done and to make any changes which he may deem expedient in the dimensions, character, nature, location or position of the works or any part or parts thereof or in any other things connected with the works whether or not such changes increase or diminish the work to be done or the cost of

doing the same, and the Contractors shall immediately comply with all requisitions of the Engineer in that behalf and shall commence and complete the work so ordered to be done within the time specified by the Engineer, but the Contractors shall not make any change in or addition to, or omission or deviation from the work and shall not be entitled to any payment for any change, addition, deviation or any extra work unless such change, addition, omission, deviation or any extra work shall have been first directed in writing by the Engineer and notified to the Contractors, and the decision of the Engineer as to whether such change or deviation increases or diminishes the work and as to the allowance to be made to the Contractors or deducted from the Contractors in respect of any such increase or diminution shall be final and all the provisions of this contract shall apply to any changes, additions, deviations or extra work in like manner and to the same extent as to the work tendered for, and no changes, additions, deviations or extra work shall annul or invalidate this contract and no compensation shall be claimable by the Contractors for any loss of anticipated profits in respect of or in consequence of any change or deviation in or omission from the works.

5. The Engineer shall be the sole judge of the work and material in respect of both quantity and quality, and his decision on all matters in dispute in respect to work and material shall be final and no works or extra or additional works or changes shall be deemed to have been executed, nor shall the Contractors be entitled to payment for the same unless the same shall have been directed in writing as hereinbefore provided and executed to the satisfaction of the Engineer as evidenced by his certificate in writing which certificate shall be a condition precedent to the right of the Contractors to be paid therefor.

6. The Contractors shall be at the risk of, and shall bear all loss or damage whatsoever which may occur to the works or any of them until the same be fully and finally completed and delivered up to and accepted by the Commission and if any such loss or damage occur before such completion, delivery and acceptance, the Contractors shall immediately at their own expense repair, restore and re-execute the work so damaged so that the whole works or the respective parts thereof will be completed within the time hereby limited.

7. The Contractors shall not at any time in connection with said work or any matter arising out of or connected with this contract, employ any person or persons in contravention of the Alien Labor Act or the provisions of the Railway Act of Ontario respecting the employment of alien labor and shall pay to all workmen, laborers and servants employed in or about the work such rates of wages as shall or may be currently payable to workmen, laborers and servants engaged in similar occupations in the district in which said work shall be performed and shall be responsible for the observance by all sub-contractors on their part of the provisions of this clause, and in the event of the Commission, who shall be the sole, absolute and final judge of these matters, being satisfied at any time that the Contractors or any sub-contractor have been guilty of any violation of any of the provisions of this clause the Commission shall have the right from time to time and as often as it shall be satisfied that any such violation has taken place to withhold all payments from the Contractors until any such violation of any of the provisions of this clause shall in the opinion of the Commission have ceased and until such amends as the Commission shall require shall have been made for all such violations, and on being notified by the Commission of any such

violation it shall be the duty of the Engineer to withhold all certificates from the Contractors until the Commission shall be satisfied that such violation has ceased and until amends shall have been made to the satisfaction of the Commission as aforesaid.

8. The Commission shall be entitled to hold as security for the due performance and completion of this contract by the Contractors the sum of five hundred dollars ($500) cash deposit made by the Contractors with their tender, which said sum of five hundred dollars. together with bank interest thereon, shall be returned to the Contractors by the Commission upon completion of the work in accordance with the covenants. terms and conditions of this agreement.

9. In consideration of the faithful performance by the Contractors of all and singular, the covenants and agreements herein contained, the Commission hereby covenants and agrees with the Contractors that it will well and truly pay them on the full completion by them of all the work to be done under this agreement in the manner and within the time hereby specified and limited for the completion thereof to the satisfaction of and subject to acceptance by the Chief Engineer and subject also as herein provided, the following sums and prices, namely:

1. For each section house complete above foundation, including out-house and tool-house $2,295.25
and the following unit prices for the different works required to construct and complete the foundations.

2. *Excavation.*

Solid rock per cubic yard	3.00
Loose rock per cubic yard	1.00
All other materials per cubic yard	.65

3. *Drainage.*

Supplying and laying 6 in. vitrified drain per lin. ft.	20

4. *Concrete.*

Per cubic yard (1; 2; 4)	9.00
Per cubic yard (1; 3; 5)	8.00

subject to such deductions or additions as shall be certified by the Engineer based on the prices shown in the Contractors' tender for said work copy of which is hereto annexed; payments to be made from time to time on proper certificate of the Engineer and the final payment to be made within forty days after the date of the Engineer's final certificate of the completion of the said contract.

10. It is distinctly agreed that no implied contract of any kind whatsoever by or on behalf of the Commission shall arise or be implied from anything contained in this contract including the said specifications, plans and drawings or the tender of the said Contractors for said work or from any position or

situation of the parties at any time, it being clearly understood and agreed that the express contracts, covenants, agreements and stipulations contained in these presents, and in the said specifications, plans and drawings are and shall be the only contracts, covenants, agreements and stipulations upon which any right of action against the Commission is to be founded: it being further expressly agreed that the said specifications and these presents are to be read together and in case of any discrepancy between these presents and anything contained in such specifications, the provisions of these presents shall govern and in case of any discrepancy appearing at any time between the specifications, plans and drawings or any of them, the Contractors shall follow such one of them as the Engineer shall in writing direct.

AS WITNESS the hand and seals of the said Contractors and the Corporate seal of the said Commission under the hands of its proper officers in that behalf.

SIGNED SEALED AND DELIVERED in the presence of:

G. H. DICKSON,
for J. G. SHERWOOD.

A. C. MORGAN,
for C. H. SHERWOOD.

J. G. SHERWOOD.
G. H. SHERWOOD.

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION.

J. L. ENGLEHART,
Chairman.

A. J. MCGEE,
Sec'y-Treasurer.

TEMISKAMING AND NORTHERN ONTARIO RAILWAY

FORM OF TENDER,

FOR STANDARD NO. 3 SECTION HOUSE.

We the undersigned hereby offer to the Temiskaming and Northern Ontario Railway Commission to furnish all the necessary materials, labor, tools and other plant, and to execute and complete in a satisfactory and workmanlike manner all the works required in connection with the construction of two (2) more or less Standard No. 3 Section Houses situated along the line of the Temiskaming and Northern Ontario Railway in accordance with the plans and specifications exhibited to us for the following unit prices:

1. Lump sum price for each building complete above foundations, including out-house and tool-house $2,295.25
   and the following unit prices for the different works required to construct and complete the foundations.

2. *Excavation*:
   Solid rock per cubic yard 3.00
   Loose rock per cubic yard 1.00
   All other materials per cubic yard ..... .65

3. *Drainage*:
Supplying and laying 6 inch vitrified drain per lin. ft. ..... .20

4. *Concrete*:
Per cubic yard (1; 2; 4;) 9.00
Per cubic yard (1; 3; 5;) 8.00

We further hold ourselves ready to enter promptly into a contract in form satisfactory to the Commission for the due execution of the said work at the rates and on the terms herein stated, and to furnish security for the due performance of the contract by bond for FIVE HUNDRED DOLLARS ($500.00) with two approved securities.

We herewith enclose an accepted bank cheque for TWO HUNDRED AND FIFTY DOLLARS ($250.00) payable to the order of the Secretary-Treasurer of the Commission, and it is hereby agreed in case of failure on our part to execute the said contract and to furnish a satisfactory bond within thirty days after the acceptance of this tender, the said cheque shall be forfeited as liquidated damages for such failure.

WE hereby certify that we have examined the site of the proposed work or have caused it to be visited and examined by a competent person on our behalf, and have made all necessary enquiries relative to the value of the materials required for the work and the amount of work to be done under the specifications.

(Signed) SHERWOOD & SHERWOOD,
Per J. G. Sherwood.

Post Office Address,
Sudbury, Ontario.

DATED at Sudbury this 14th day of May, 1914.

NOTE: Envelopes containing this tender are to be endorsed "Tender for Standard No. 3 Section House" and addressed to

S. B. CLEMENT,

Chief Engineer and Supt. of Maintenance.

T. & N. O. Rly.,

North Bay, Ont.

MEMORANDUM OF AGREEMENT made the 31st day of August, 1914.

BETWEEN:

THE CANADIAN NORTHERN ONTARIO RAILWAY COMPANY, hereinafter called the Company,

and

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WHEREAS the Company is constructing a line of railway between Ottawa and Capreol the route of which crosses the railway of the Commission at a point near the Town of North Bay as shown on the plan hereto annexed, and has applied to the Board of Railway Commissioners for Canada for approval of a level crossing of the railway of the Commission at the aforesaid point;

AND WHEREAS the Commission proposes from time to time to lay such additional tracks of its railway at the said point as may be necessary to meet the future requirements of the Commission;

AND WHEREAS the Commission denies that the Board of Railway Commissioners for Canada has any jurisdiction in the premises;

AND WHEREAS it is desirable to avoid disputes and litigation in the premises;

NOW THEREFORE THESE PRESENTS WITNESS that it has been agreed between the parties as follows:

1. Without admitting on the part of the Commission the jurisdiction of the Board of Railway Commissioners for Canada in the premises, the Commission consents subject to the terms hereof to the Company constructing a crossing at said point in accordance with the plan and profiles filed with the Dominion Board of Railway Commissioners.

2. The Company agrees without expense to the Commission to construct such crossing including the installation of diamonds all as shown on the plan hereto annexed, and to install an interlocking protective system at said crossing in accordance with the latest standard specifications of the Board of Railway Commissioners for Canada applicable to level railway crossings, such interlocking protective system to be approved by the Engineer of the Board of Railway Commissioners for Canada and by the Chief Engineer of the Commission.

3. The cost of renewing, maintaining, repairing and operating said interlocking protective system shall be borne by the Company.

4. The lever men, maintainers, signal men or persons who so operate or maintain said interlocking protective system shall be appointed and their wages paid by the Company, but they may be removed upon demand of the Commission for reasonable cause.

5. All frogs, derails and switches used in connection with said crossing shall be installed, maintained and renewed when necessary, by the Company, and in case of the failure of the Company so to do, the Commission shall have the right to do such work, and the expense thereby incurred shall be paid by the Company to the Commission as certified by the Chief Engineer of the Commission whose certificate in the premises shall be final, binding and conclusive upon the parties, but such frogs, derails and switches on the Commission's tracks shall be maintained and kept free from ice, snow, dust or other obstructions by the Commission, who shall render proper bills to the Company for the repayment of the cost of such work.

6. As between trains of the same class the trains of the Commission shall be deemed superior to the trains of the Company, the intention of the parties being that said crossing shall be operated with as little interference to the operation of the trains of the Commission as possible.

7. The Commission having one main line track in operation at the said crossing, one stock yard siding, one material yard siding, together with a passing siding on the west side of the Commission's main line track, as shown on plan hereto attached, expressly reserves the right at any and all times hereafter to construct at said point of crossing, within the limits of the Commission's right-of-way, two tracks in addition to those referred to in this clause and in clause two hereof, not exceeding in existing and future trackage six tracks in all, and the Company hereby consents to the construction of such further additional tracks by the Commission and agrees to defray the extra cost of all additional or special track work and the installation of the necessary diamonds and the interlocking protective system which may be caused by the crossing of the Company's track herein referred to.

8. The Company shall immediately repair and make good any damage done to the tracks, grounds or other property of the Commission by reason of the construction of the said crossing, and all other parts of the line of the Company so far as it crosses the right-of-way of the Commission or by reason of the repair and maintenance of any portion of the tracks of the Company crossing the right-of-way of the Commission, and shall from time to time promptly repair, at its own expense, any injury which may at any time be done to the tracks of the Commission or to any of its property by reason of the construction or use of such crossing or by reason of the operation of the line of railway of the Company over same, and in case of the failure of the Company at any time to restore and repair any such damages, same may be restored and repaired by the Commission and the Company will promptly pay to the Commission all the costs or expenses thereof or connected therewith, and in the event of any dispute arising as to the costs or expense thereof, same shall be settled by the Chief Engineer for the time being for the Board of Railway Commissioners for Canada, as hereinafter provided.

9. Neither the Commission, its servants or agents, or any of them shall be liable directly or indirectly in respect of any injury to the said crossing including the approaches so far as the same is on the line of railway of the Commission or for any injury to any cars, appliances or other property of the Company while on said crossing, or in respect of any injury to any employee or representative of the Company while engaged in the construction, maintenance or repair of the said crossing or in the operation of the railway of the Company over said crossing or otherwise engaged on or adjoining the property of the Commission in connection therewith, or whether any such injury or loss shall have arisen or have been caused in connection with the operation of the railway of the Commission or otherwise howsoever, unless same shall have been clearly shown to have been caused by the negligence or default of the Commision or its employees.

10. It is further understood and agreed between the parties hereto that the Commission may at any time hereafter whenever it may consider it necessary or expedient so to do, lower the grade of the Commission's tracks at said point to the extent of not more than five feet and for this purpose may lower the tracks of the Company to conform with such change in grade, provided that all work required

to be done in connection with such change in grade shall be at the expense and cost of the Commission, and shall be completed to the satisfaction of the Chief Engineer from time to time of the Company and without interfering with the traffic of the Company at such point.

11. In the event of any disagreement arising between the parties as to the construction, extension or maintenance of the crossing or interlocking plant, it is agreed that the matter in dispute shall be referred to the Chief Engineer for the time being of the Board of Railway Commissioners for Canada for settlement, whose decision shall be final.

12. These presents shall enure to the benefit of and be binding upon the successors and assigns of the said parties respectively.

AS WITNESS the Corporate Seals of the said Parties under the hands of their proper officers in that behalf.

SIGNED, SEALED AND DELIVERED in the presence of:

THE CANADIAN NORTHERN ONTARIO RAILWAY COMPANY,
D. B. HANNA,
3rd Vice-President.

R. P. ORMSBY,
Secretary.

TEMPLE,
A. B. ODLUM.

TEMISKAMING AND NORTHERN ONTARIO RY. COM'N.

J. L. ENGLEHART,
Chairman.

A. J. McGEE,
Secretary-Treasurer.

THIS INDENTURE made in duplicate the ninth day of February, one thousand nine hundred and fourteen.

BETWEEN:

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission,

and

THE EMPIRE LUMBER COMPANY, LIMITED, hereinafter called the Company.

WHEREAS by a certain Indenture of Lease dated the 1st day of April, 1905, the Commission demised and leased the lands and premises hereinafter described unto the Company upon the terms and for the consideration therein set forth.

AND WHEREAS by an Indenture bearing even date herewith the said Company has surrendered and released unto the Commission the lands and premises referred to in said Indenture of Lease and the unexpired residue of the term thereby created.

AND WHEREAS the parties hereto have had other dealings with one another in connection with which certain disputes and differences have arisen.

AND WHEREAS in order to avoid litigation the parties have agreed to compromise all matters in the premises.

AND WHEREAS the parties have agreed to enter into these presents pursuant to such compromise.

NOW THEREFORE IT IS AGREED BY AND BETWEEN THE PARTIES AS FOLLOWS:

1. The Company hereby agrees to pay the Commission on the execution hereof and the Commission hereby accepts the sum of $181.72 in full settlement of all outstanding accounts between the parties to date.

2. Subject to the terms and conditions hereof the Commission hereby agrees to permit the Company to occupy and retain possession of all that part of the station grounds of the Commission at Latchford Station, lying between the right-of-way of the railway through said station grounds and the Montreal River, and all that part of the townsite known as Latchford Townsite lying north-east of the said station grounds between the said right-of-way and the Montreal River, and the Company agrees to pay to the Commission as rental for said lands and premises the sum of $100.00 per annum reckoned from the date thereof and payable in monthly instalments of $8.33 in advance on the 1st day of each and every month during the continuance of the tenancy hereby granted, the first of such payments to become due and be payable on the date of the execution of these presents. The Company shall also pay all municipal and other taxes, rates and levies heretofore or which shall hereafter during the continuance of said tenancy be imposed on said lands or otherwise in respect of the said premises.

3. It is expressly agreed that the Commission shall not be liable directly or indirectly in respect of any injury to the building or any chattel or other property of any kind at any time on or used in connection with the said premises, whether such injury or loss shall have arisen or been caused in connection with the operations of the railway of the Commission or otherwise howsoever, or whether such injury or loss shall be caused by the negligence or default of the Commission or of any of its servants or employees or by any other cause whatsoever.

4. The Company will from time to time and at all times hereafter protect and save harmless the Commission and all its property from and against any claim (and the costs connected therewith) made by any other party whomsoever, in respect of any injury to or loss of any property real or personal at any time upon or used in connection with the said premises or in respect of any damage or injury claimed to have been done to or sustained by any person or persons in, upon or in connection with said premises or any part thereof whether any such injury or loss to property or person be caused by the negligence or default of the Commission or of any of its agents or servants or from any other cause whatsoever.

5. The Company shall not assign, transfer or make over its interest under this agreement to any person whomsoever, or sub-let the whole or any part of said premises without the consent in writing of the Commission. The Company shall

not use or employ any part of said premises for the storage of any aqua fortis, oil of vitriol, gunpowder, dynamite, nitro-glycerine or any other goods which in the judgment of the Commission are of an explosive or dangerous nature.

6. It is hereby understood and agreed between the parties hereto that the Company shall be at liberty to dismantle and remove the plant and machinery from the buildings erected on the lands hereby demised within ninty days from the date hereof, and in default of the Company so doing the Commission may at any time within six months thereafter sell, lease or otherwise dispose of the said lands and premises including all buildings, plant and machinery thereon, and in the event of the Commission selling, leasing or otherwise disposing of said lands and premises within the said period of six months the Commission shall pay to the Company the value of said plant and machinery which for the purpose of this agreement is hereby fixed at the sum of $18,000. In case the Commission shall not sell, lease or otherwise dispose of the said lands and premises as aforesaid within the said period of six months the Company shall have a further period of ninety days thereafter within which to dismantle and remove said plant and machinery, and in default of the Company so doing it shall be deemed to have abandoned the said plant and machinery, and the same shall thereupon become the absolute property of the Commission and the Company shall have no further claim thereto, and the Commission shall be at liberty to deal with the same as it in its absolute discretion shall see fit without any right on the part of the Company to receive any compensation therefor or any part thereof.

7. Subject to the provisions of the preceding paragraph hereof the Company hereby covenants and agrees with the Commission to execute and to do all such further acts, deeds or assurances as the Commission may consider necessary or advisable to vest the said plant and machinery in the Commission.

8. Upon the removal or abandonment of said plant and machinery by the Company, or upon the sale or other disposition of the said lands and premises by the Commission within the periods respectively limited by paragraph six hereof, which ever event shall first happen the Company's liability to pay the rental hereby secured shall thereupon cease and this agreement shall terminate, and in case this agreement shall be terminated as aforesaid before the expiration of any month in respect of which the Company shall have paid the aforesaid rental, the Commission will thereupon refund the proportionate part of such rental.

9. In dismantling and removing the plant and machinery from the buildings on the said lands the Company shall do as little damage as possible to the said buildings, but shall not be bound to repair any damage necessarily caused by such dismantling or removal.

10. It is hereby understood and agreed between the parties hereto that the plant and machinery on said lands and premises during the currency of this agreement shall be at the sole risk of the Company from loss by fire or otherwise, and in the event of the destruction of said plant and machinery the Commission shall not be liable to pay the Company the value thereof as provided in paragraph six hereof. In case of partial destruction of said plant and machinery the provisions of said paragraph six as to the Company's right to dismantle and remove the said plant and machinery shall apply to so much thereof as shall not have been

destroyed, and the value of such plant and machinery as fixed by paragraph six hereof shall abate proportionately, and in the event of any dispute between the parties as to the amount of such abatement the same shall be determined by the Chief Engineer from time to time of the Commission whose decision in the premises shall be final, binding and conclusive upon the parties.

11. In case the Company shall make default in payment of the rental hereby secured or otherwise fails to observe, keep and perform any of the covenants or conditons herein contained, the Commission shall have the right to immediately cancel this agreement and all the rights of the Company hereunder shall thereupon cease without notice, but the Company shall, nevertheless, have one month from such termination within which to remove said plant and machinery, and in default of its so doing the same shall belong to the Commission without any right to the Company to have compensation therefor, or the Commission may, if it sees fit, remove or cause to be removed such plant and machinery at the expense of the Company which shall pay to the Commission forthwith the costs of such removal as certified by the Chief Engineer from time to time of the Commission, whose certificate as to such costs shall be final, binding and conclusive upon the parties. The Company shall have no claim against the Commission for injury if any done to the said plant and machinery by any such removal.

12. It is hereby expressly agreed that time shall be of the essence of this agreement.

13. This agreement shall be binding upon and shall enure to the benefit of the parties hereto, their successors and assigns respectively.

IN WITNESS WHEREOF the said parties have caused these presents to be executed under their respective corporate seals and under the hands of the proper officers in that behalf.

SIGNED, SEALED AND DELIVERED in the presence of:

TEMISKAMING AND NORTHERN ONTARIO RY. COM'N,

J. L. ENGLEHART,
Chairman.

A. J. MCGEE,
Secretary-Treasurer.

EMPIRE LUMBER CO., LIMITED,

CHAS. D. WARREN,
President.

E. B. RIDGE.

O. J. DONOGH,
Secretary-Treasurer.

THIS AGREEMENT made the eighth day of January, 1914.

BETWEEN:

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called "The Commission," of the First Part,

and

COBALT TOWNSITE MINING COMPANY, LIMITED, hereinafter called "The Company," of the Second Part.

WHEREAS by a certain Indenture of Lease dated the 16th day of May, 1906, the Commission did lease to the Company Lot Number 45, according to plan recorded in the Office of Land Titles at North Bay as Plan M. 47, of Parcel 2876, in the Register for the District of Nipissing, together with all veins, seams, beds and deposits of metal and mineral ores in or under the said lands, to hold the same for a period of nine hundred and ninety-nine years, subject to the terms and conditions of the said lease.

AND WHEREAS the said lease has been amended from time to time, and as amended is now in full force and effect.

AND WHEREAS differences have arisen between the parties hereto with respect to the ownership of and dealing with the surface of the said lands.

NOW THEREFORE, for valuable considerations, the parties hereto agree as follows:

1. The Company, forthwith upon receipt of a request from the Commission so to do, shall, at its own expense, cause the surface of the lands referred to in the lease hereinbefore in part recited, to be laid out by a competent Ontario land surveyor in streets and lots, such survey to be under the joint direction of the Manager of the Company and a nominee of the Commission; on completion of said survey the Company shall, at its own expense, cause the plan of survey to be registered in the Land Titles Office at North Bay.

2. Upon the survey being made the Manager of the Company and the Mining Engineer of the Commission shall forthwith designate in writing such lots which, in their opinion, shall be available for immediate sale, and thereupon the Commission shall be at liberty to sell the surface rights to the said lots for such prices and upon such terms as it may deem fit.

3. Transfers of lots to purchasers shall be made in the form hereto annexed and marked "A," and shall be executed by both the Commission and the Company.

4. After the payment of the expenses incurred in connection with the sale of lots under this agreement the receipts from such sales shall be divided as follows: The first five thousand dollars ($5,000.00) shall be paid to the Commission; the second five thousand dollars ($5,000.00) shall be paid to the Company, and thereafter all receipts shall be divided equally between the parties hereto.

5. Subject to the terms of this agreement, said lease dated 16th May, 1906, as heretofore amended, is hereby confirmed and declared to be valid and binding upon the parties according to its terms, and, save as to the right to sell as herein provided the surface rights of such lots as may be designated by the Manager of the Company and the Mining Engineer of the Commission, as aforesaid, this agreement is hereby declared to be made without prejudice to the rights of the parties hereto under said lease, all of which said rights are hereby reserved.

IN WITNESS WHEREOF the parties hereto have caused this agreement to be executed under their respective corporate seals and the hands of their proper officers.

In the presence of:

W. R. P. PARKER,
President,
J. P. WATSON,
Vice-President.
TEMISKAMING AND NORTHERN ONTARIO RY. COM'N,

J. L. ENGLEHART,
Chairman.

A. J. McGEE,
Secretary-Treasurer.

LAND TITLES ACT.

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION AND COBALT TOWNSITE MINING COMPANY, LIMITED, the registered owners of the freehold land registered in the Office of Land Titles at North Bay, as Parcel in the Register for the District of Nipissing in consideration of the sum of dollars paid to them transfer to of the of in the of the land hereinafter particularly described, namely:

being of the said parcel excepting and reserving unto the grantors and each of them and the successors and assigns of each of them, all mines, veins, seams and beds of coal, iron, cobalt, silver and other minerals whatsoever already found or which may hereafter be found on or under the lands hereby granted or expressed so to be with full liberty of ingress, egress and regress at all times for the grantors, and each of them and the successors and assigns of each of them, and the servants, agents or workmen of each of them in and upon the said lands either with or without horses and other cattle, carts and wagons and other vehicles for the purpose of searching for, working, getting and carrying away the said mines and minerals, and with full liberty also for the grantors and each of them and the successors and assigns of each of them, to sink, drive, make and use pits, shafts, drifts, adits, air courses and water courses, and to erect and set up

fire and other engines, machinery and works, and to lay down railroads and other roads in, on, under and over the said lands, or any of them, for the purpose of more conveniently working and carrying away the said mines and minerals, and also to appropriate and use any part of the surface of the said lands for depositing, placing and heaping thereon the minerals, waste, rubbish and other substances which may be obtained from the said mines, and generally to do all other acts and things necessary or proper for working and obtaining the said mines and minerals according to the most approved practice of mining in the district.

AND the said hereby releases the Temiskaming and Northern Ontario Railway Commission and the Cobalt Townsite Mining Company, Limited, and each of them, their and each of their successors and assigns, and covenants that he will at all times indemnify and save harmless them and each of them, their and each of their successors and assigns, of and from all loss, injury, damages, costs and expenses for any damage or injury whatsoever to the said property, or to any buildings now thereon or which hereafter may be placed thereon, or to any person or persons while in or upon the said property, which may be caused by reason of the railway operation of the Temiskaming and Northern Ontario Railway Commission or the mining operations of the Cobalt Townsite Mining Company, Limited, or otherwise, and whether or not such damage or injury shall be caused by the negligence of the Temiskaming and Northern Ontario Railway Commission or Cobalt Townsite Mining Company, Limited, or either of them, or of the officers, agents, servants and workmen of both or either of them; it being understood that this covenant is one of the considerations for this transfer, and without which the same would not have been given.

DATED the day of one thousand nine hundred and

WITNESS:

BOND No. 710810.

LONDON GUARANTEE AND ACCIDENT COMPANY, LIMITED.

Replacing Bond No. 80064.

TORONTO, ONT.

No. $32,250

The London Guarantee and Accident Co., Limited, as surety, for a premium based upon an annual rate per hundred dollars of suretyship, hereby guarantee to pay to THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, the employer, such pecuniary loss as the employer shall sustain (limited only by the provisos hereof) of money bonds, debentures, scrips, certificates, warrants, transfers, coupons, bills of exchange, promissory notes, checks, bank notes, currency, merchandise, or other property, including that for which employer is responsible, occasioned by any act or acts of fraud, dishonesty, forgery, theft, larceny, embezzlement, wrongful abstraction or misapplication or misappropriation or other criminal act by any of the employees listed hereunder

directly or through connivance in any position and at any location in the employer's employ, and during the period commencing upon the date each is listed hereunder and continuing until the termination of this suretyship.

PROVISOS:

1. On application, other employees may be added hereto from time to time by the Surety issuing an acceptance in writing, stating the amount and the date added, and this suretyship on any employee may be increased or decreased by the Surety without impairing the continuity hereof, provided the Surety's aggregate liability under all its bonds and engagements on any one employee shall not exceed the largest bond or engagement on such employee.

2. In the event of recovery of any loss or portion thereof, from other than suretyship, the surety and Employer shall share therein in the same proportion that their respective losses bear to the total loss.

3. The employer shall deliver notice of any default hereof to the Surety at its Toronto office within ten days after the discovery of such default. All claims shall be submitted separately as to each employee, showing the items and dates of the losses and delivered in writing to the Surety at its Toronto office within three months after their discovery. The Surety shall have two months after claim has been presented in which to verify and pay same, during which time no legal proceedings shall be brought against the Surety as to that claim, nor at all as to that claim after the expiration of twelve months from the date of said claim.

4. This suretyship as to any or all of the employees shall only terminate by:

(1) The Employer giving notice in writing to the Surety specifying the date of termination.

(2) The Surety giving thirty days' notice in writing to the Employer. (The Surety to refund unearned premium in the above cases.)

(3) The non-payment of premium for a period of three months beyond date due; all premium being due in advance.

Except that as to any employee, upon discovery of loss through that employee.

IN TESTIMONY WHEREOF, the London Guarantee and Accident Company, Limited, has hereunto set its seal. Witness the hand of its attorney-in-fact, on this twentieth day of May, 1914.

LONDON GUARANTEE AND ACCIDENT CO., LIMITED,

D. W. ALEXANDER,

Manager for Canada.

THIS INDENTURE made the 31st day of January, in the year of our Lord one thousand nine hundred and fourteen.

BETWEEN:

ALFRED JAMES REECE, of the Village of Elk Lake in the District of Nipissing, operator, heretofore carrying on business under the name and style of Elk Lake Telegraph and Telephone Company, hereinafter called the Vendor.

Of the First Part.

and

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

Of the Second Part.

WHEREAS the Vendor has for several years past carried on a telegraph and telephone business in the District of Nipissing, operating a telegraph and telephone system between Elk Lake and Gowganda;

AND WHEREAS the Vendor has agreed to sell to the Commission the said telegraph and telephone business at the price of four thousand, six hundred and fifty dollars ($4,650);

NOW THIS INDENTURE WITNESSETH, that in pursuance of the said agreement and in consideration of the sum of four thousand six hundred and fifty dollars of lawful money of Canada, paid by the said Commission to the Vendor, at or before the sealing and delivery of these presents; (the receipt whereof is hereby acknowledged) the said Vendor hath bargained, sold, assigned, transferred, and set over and by these presents doth bargain, sell, assign, transfer and set over unto the said Commission, its successors and assigns:

1. ALL AND SINGULAR the telegraph and telephone business heretofore carried on by the Vendor in the District of Nipissing aforesaid and the goodwill thereof and the full benefit thereof.

2. The right to use the name Elk Lake Telegraph and Telephone Company.

3. All subsisting contracts, leases, franchises and other engagements entered into by the Vendor in connection with the said business hereby assigned.

4. All telegraph and telephone wires, poles, insulators, telephones and other equipment, apparatus, appliances, tools, goods, chattels and effects used or connected with the operation, maintenance or repair of said telegraph and telephone system and belonging to the Vendor in respect of said business or in any way used in or belonging to the said business, all of which are now in the possession of the Vendor, his agents and subscribers at various points throughout the District of Temiskaming in which the Vendor has been carrying on business and being in the various offices, place of business, telegraph and telephone stations, exchanges, centres and store houses in which they have been set up, installed or stored by the Vendor or his agents along the roads, highways, rights-of-way and other lands through, over or upon which said telegraph and telephone lines of the Vendor pass and being more particularly described and set forth in the inventory hereto annexed.

AND all the right, title, interest, property, claim and demand whatsoever, both at law and in equity or otherwise howsoever of him the said Vendor, of, in, to and out of the same and every part thereof:

TO HAVE AND TO HOLD the said hereinbefore assigned business, goodwill, goods, chattels and effects with the appurtenances, and all the right, title and interest of the Vendor thereto and therein as aforesaid, unto and to the use of the Commission, its successors and assigns to and for its and their sole and only use forever.

And the said Vendor doth hereby for himself, his heirs, executors and administrators, covenant, promise and agree with the said Commission, its successors and assigns in manner following, that is to say, that the Vendor is now rightfully and absolutely possessed of and entitled to the said hereby assigned business, goodwill, goods, chattels and effects and every part thereof, and that the said Vendor now has in him good right to assign the same unto the Commission, its successors and assigns in manner aforesaid and according to the true intent and meaning of these presents, and that the said Commission, its successors and assigns shall immediately, on the execution and delivery of these presents, have possession of and may from time to time, and at all times hereafter, peaceably and quietly have, hold, possess and enjoy the said hereby assigned business, goodwill, goods, chattels and effects to and for its own use and benefit without any manner of hindrance, interruption, molestation, claim or demand whatsoever of, from or by the said Vendor or any person or persons whomsoever: AND that free and clear, and freely and absolutely released and discharged or otherwise, at the costs of the said Vendor, effectually indemnified from and against all former and other bargians, sales, gifts, grants, titles, charges and encumbrances whatsoever; AND that free and clear and freely and absolutely released and discharged or otherwise, at the costs of the said vendor, effectually indemnified from and against all former and other bargains, sales, gifts, grants, titles, charges and encumbrances whatsoever.

AND moreover the said Vendor and all persons rightfully claiming or to claim any estate, right, title or interest of, in, or to the said hereby assigned business, goodwill, goods, chattels and effects and every part thereof, shall and will from time to time and at all times hereafter upon every reasonable request of the said Commission, its successors and assigns, but at the cost and charges of the said Commission make, do and execute or cause or procure to be made done and executed all such further acts, deeds and assurances for the more effectually assigning and assuring the said hereby assigned business, goodwill, goods, chattels and effects unto the Commission, its successors and assigns in manner aforesaid and according to the true intent and meaning of these presents, as by the said Commission, its successors and assigns or its counsel, shall be reasonably advised or required.

AND the said Vendor for himself, his heirs, executors, administrators and assigns, doth hereby covenant and agree with the said Commission, its successors and assigns that he will from time to time and at all times hereafter protect and save harmless the Commission and all its property from and against any and every claim, and the costs and expenses connected therewith made by any person or corporation whomsoever in respect of the said business, goodwill, goods, chattels and effects hereby assigned or any part thereof, and of and from all claims and demands of any of the creditors of one R. A. Hedley and of the Vendor or otherwise.

AND for the consideration aforesaid the said Vendor for himself, his heirs, executors, administrators and assigns, hereby covenants and agrees with the Commission that he will not for a period of five years from the date hereof either solely or jointly with or as manager or agent for any other person, persons or corporation directly or indirectly carry on, be engaged, concerned or interested in a telegraph or telephone business or any other similar business which will compete or interfere with the business to be carried on by the Commission, or permit or suffer his name to be used or employed in the carrying on or in connection with such business within the District of Temiskaming.

IN WITNESS WHEREOF the Vendor has hereunto set his hand and seal and the Commission has hereunto affixed its corporate seal under the hands of its proper officers in that behalf.

SIGNED, SEALED AND DELIVERED
in the presence of:

A. J. REECE,

TEMISKAMING AND NORTHERN ONTARIO RY. COM'N,

J. L. ENGLEHART,
Chairman.

A. J. MCGEE,
Secretary-Treasurer.

Inventory referred to in the annexed Bill of Sale made between Alfred James Reece and the Temiskaming and Northern Ontario Railway Commission, dated the day of January, 1914.

1. Property on the premises of the Vendor at Elk Lake:

5 Norton wall telephones.
5 Norton wall telephones.
1 Norton desk telephone.
2 Independent desk telephones.
1 Independent wall telephone.
5 spare jacks.
6 spare jacks.
1 switchboard—200 lines—wired for 57 lines, in use.
1 cabinet.
1 jack strap.
1 pair connectors.
1 pair climbers, complete.
3 pike poles.
1 ground auger.
3 racks.
2 racks.
18 telephone poles in town.
15 telephone poles on Lake Shore line, leased.
31½ miles poles, Elk Lake to Gowganda line, leased.

2. Property on the premises occupied by the Vendor at Gowganda.

1 switchboard—200 lines—20 jacks wired.
1 rack.
4 racks.
1 switchboard—20 lines.
1 pair comealongs.
1 pair connectors.
3 Norton wall telephones.
3 Norton wall telephones.
2 test sets.

3. Telephones on line between Elk Lake and Gowganda:

		Mileage
1	Norton wall telephone, J. F. Booth camp	9
1	" " " N. Surry	9
1	" " " P. Sage	14
2	" " " Wigman	20
1	" " " Powerful Mine branch from Wigwam	
1	" " " Bishop Mine branch.	
1	" " " Galeta Mine branch.	
1	" " " Canadian Gowganda	25

4. Telephones at Elk Lake exchange.

1 Norton telephone in cabinet at central.
1 Norton telephone in T. & N. O. Rly. Station.
1 Norton electric, A. J. Reece, residence.
1 Norton telephone, Elk Lake Club.
1 Northern Electric, D. Connelly's store.
1 Norton telephone, D. Connelly's bakery.
1 " " Vendome Hotel.
1 " " C.McCarthy, residence.
1 " " N. Morrison, residence.
1 " " Minto Hotel.
1 " " R. Sparks, residence.
1 " " R. R. Woods, store.
1 " " H. S. Mickie, residence.
1 " " Elk Lake Power Co.
1 " " A. Ribble.
1 " " Dr. McKee.
1 " " J. R. Booth's office.
1 Independent desk telephone, Imperial Bank.
1 Norton telephone bank manager's room.
1 " " W. Stack, residence.
1 " " A. R. Craig, store.
1 Independent desk telephone, Recording Office.
1 Norton telephone, H. Porter & Co., store.
1 " " H. McKee, office.
1 " " H. McKee, residence.
1 Independent desk telephone, Jamieson Meat Co.

1 Norton telephone, A. E. Taylor, drug store.
1 Norton desk telephone, A. J. Reece, office.
1 Norton wall telephone, Miss Crawford's residence.
1 Norton desk telephone, King George Hotel.
1 Norton wall telephone, Beacon Mines.
1 Norton wall telephone, Beaver Mines.
1 Norton wall telephone, Beaver Mines, manager's residence.

5. Telephones at Gowganda exchange:

1 Norton wall telephone, Miller Lake, O'Brien Mine.
1 " " " Gowganda Hospital.
1 " desk " Dr. Gram's office.
1 " wall " Dam Office.
1 " " " Dam cookery.
1 " " " Jamieson Meat Co., store.
1 " " " Speer Bros., store.
1 " " " Karam store.
1 " " " Bank of Commerce.
1 " " " Barrett Hotel.
1 " " " Banker's Mess.
1 " " " Taylor's Drug Store.
1 Canadian Independent wall telephone res.
1 Canadian Independent wall telephone, Dr. Russel's office.

6. All other articles, effects, matters and things belonging to the said Vendor in connection with his said telegraph and telephone business and in or upon the premises above referred to.

KNOW ALL MEN BY THESE PRESENTS that the Temiskaming and Northern Ontario Railway Commission doth hereby constitute, authorize and appoint ALFRED JOHN McGEE, of the City of Toronto, in the County of York, Secretary, its true and lawful attorney and agent for it and on its behalf to take and receive from ALFRED JAMES REECE, of the Village of Elk Lake, in the District of Nipissing, Operator, a bill of sale of certain goods, chattels and effects, the property of the said Alfred James Reece, for and in consideration of the sum of $4,650 to be paid by the said The Temiskaming and Northern Ontario Railway Commission for the purchase thereof, and to make such affidavits as may be required for the registration of said bill of sale and for the purposes aforesaid the said The Temiskaming and Northern Ontario Railway Commission doth hereby give its said attorney and agent full power and authority to do, perform and execute all acts, deeds, matters and things necessary to be done in the premises as fully and as effectually as the said The Temiskaming and Northern Ontario Railway Commission could do. The said Commission hereby ratifying and agreeing to ratify and confirm all and whatsoever its said attorney shall lawfully do or cause to be done by virtue thereof.

AS WITNESS the corporate seal of the said Commission under the hands of its proper officers in that behalf this 31st day of January, 1914.

SIGNED, SEALED AND DELIVERED
in the presence of:

(Sgd.) H. McNeice.

Temiskaming and Northern
Ontario Ry. Com'n,

J. L. Englehart,
Chairman.

A. J. McGee,
Secretary-Treasurer.

ONTARIO
COUNTY OF YORK
TO WIT: } I, ALFRED JOHN McGEE, of the City of Toronto, in the County of York, Secretary, MAKE OATH AND SAY:

1. I am the Secretary of the Temiskaming and Northern Ontario Railway Commission the bargainee in the annexed conveyance or bill of sale named and I am aware of all the circumstances connected with the sale and I have personal knowledge of the facts deposed to.

2. I am the agent of the said barginee duly authorized in writing to take said conveyance and bill of sale and the paper writing marked "B" attached to the said conveyance is a true copy of the said authority.

3. The sale therein made is bona fide and for good consideration, namely; the sum of $4,650 as set forth in said conveyance and is not for the purpose of helping or enabling the said bargainee to hold the goods mentioned therein against the creditors of A. J. Reece the bargainor therein named.

SWORN BEFORE ME, at the City of
Toronto, in the County of York, this
2nd day of February, 1914.
R. H. Parmenter,
A Commissioner, etc.

A. J. McGee.

ONTARIO
COUNTY OF YORK
TO WIT: } I, REGINALD HOLLAND PARMENTER, of the City of Toronto, in the County of York, Solicitor, MAKE OATH AND SAY:

1. I was personally present and did see the annexed bill of sale duly signed, sealed and executed by Alfred James Reece, one of the parties thereto.

2. The name R. H. PARMENTER, set and subscribed as a witness to the execution thereof is of the proper hand writing of me this deponent.

3. The said bill of sale was executed at the City of Toronto, in the County of York, the 2nd day of February, 1914.

SWORN BEFORE ME, at the City of
Toronto, in the County of York, this
2nd day of February, 1914.

W. S. Monock,
A Commissioner, etc.

Bond No. 29,328.

THE EMPLOYERS' LIABILITY ASSURANCE CORPORATION, LIMITED, of London, England, as Surety, for a premium based upon an annual rate per one hundred dollars as suretyship, hereby guarantees to pay to The Temiskaming' Northern Ontario Railway Commission, The Canadian Express Company and the Dominion Express Company, as their interests may appear, such pecuniary loss as the employer shall sustain (limited only by the provisos hereof) of money, bonds, debentures, scrips, certificates, warrants, transfers, coupons, Bills of exchange, promissory notes, cheques, bank notes, currency, merchandise, or other property, including that for which Employer is responsible, occasioned by any act or acts of fraud, dishonesty, forgery, theft, larceny, embezzlement, wrongful abstraction or misapplication or misappropriation or other criminal act by any of the employees listed hereunder directly or through connivance in any position, and at any location in the Employer's employ, and during the period commencing upon the date each is listed hereunder and continuing until the termination of this suretyship.

Provisos:

1. On application, other employees may be added hereto from time to time by the surety issuing an acceptance in writing, stating the amount and the date added, and this suretyship on any employee may be increased or decreased by the surety without impairing the continuity hereof, provided the surety's aggregate liability under all its bonds and engagements on any one employee shall not exceed the largest bond or engagement on such employee.

2. In the event of recovery of any loss or portion thereof, from other than suretyship, the surety and employer shall share therein in the same proportion that their respective losses bear to the total loss.

3. The employer shall deliver notice of any default hereof to the surety at its Toronto office within ten days after the discovery of such default. All claims shall be submitted separately as to each employee, showing the items and dates of the losses and delivered in writing to the surety at its Toronto office within three months after their discovery. The surety shall have two months after claim has been presented in which to verify and pay same, during which time no legal proceeding shall be brought against the surety as to that claim, nor at all as to that claim after the expiration of twelve months from the date of said claim.

4. This suretyship as to any or all of the employees shall only terminate by:

(1) The employer giving notice in writing to the surety specifying the date of termination.
(2) The surety giving thirty days' notice in writing to the employer. (The surety to refund unearned premiums in the above cases.)
(3) The non-payment of premium for a period of three months beyond date due, all premiums being due in advance.

Except that as to any employee, upon discovery of loss through that employee.
Dated this 1st day of August, 1914.

IN WITNESS WHEREOF the said, The Employers' Liability Assurance Corporation, Limited, has caused these presents to be signed by Charles William Irvine Woodland, its authorized Manager for Canada, acting under Power of Attorney.

SIGNED, SEALED AND DELIVERED by the Employers' Liability Assurance corporation, Limited, by the hand of Charles William Irvine Woodland, in the presence of:
R. E. PATTERSON.

THE EMPLOYERS' LIABILITY ASSURANCE CORPORATION, LIMITED.
GRIFFIN & WOODLAND,
Managers for Canada.
C. W. J. WOODLAND,
Attorney.

DOMINION OF CANADA
COUNTY OF YORK,
TO WIT:

I, Robert Edwin Patterson, of the City of Toronto, in the County of York, Accountant, make oath and say:

1. THAT I was personally present and did see the annexed bond, Number 29,328, duly signed, sealed and executed by Charles William Irvine Woodland, as Attorney for The Employers' Liability Assurance Corporation, Limited.
2. THAT I know the said party.
3. That the said bond was executed at the City of Toronto.
4. THAT I am subscribing witness to the said bond.

SWORN before me at the City of Toronto in the County of York, this 4th day of September, A.D. 1914.
R. F. McGOWAN,
Comm. etc.

R. E. PATTERSON.

MEMORANDUM OF AGREEMENT made in triplicate this ninth day of February, 1914.

BETWEEN:

THE EMPIRE LUMBER COMPANY, LIMITED, AND THE IMPERIAL LUMBER COMPANY, LIMITED (hereinafter called the Lumber Companies).

—and—

THE TEMISKAMING & NORTHERN ONTARIO RAILWAY COMMISSION (hereinafter called the Commission).

WHEREAS by a certain agreement dated the 5th day of June, 1906, as amended by a certain other agreement dated January, 1910, the Commission agreed to construct a spur or switch from a point on the main line of its railway near Haileybury to a point on the water front at Haileybury, conveniently near the Haileybury wharf for the purpose of affording shipping facilities for the logs of the Lumber Companies;

AND WHEREAS in and by said agreement the Lumber Companies covenanted with the Commission that they would, during each of the seasons 1910-11-12-13-14 and 1915 pay to the Commission on account of freight for transportation of logs from Haileybury to Latchford, not less than the sum of eight thousand, three hundred and thirty-three dollars and thirty-four cents ($8,333.34);

AND WHEREAS by a certain agreement dated the 30th day of October, 1909, made between the Empire Lumber Company, Limited (therein called the (Company) and the Commission, the Commission agreed for the consideration and upon the terms therein mentioned, to permit the Company to construct a jack ladder for the purpose of handling logs for loading on board cars, partly on the right of way of the Commission at or near Moore's Cove north of the Town of Haileybury;

AND WHEREAS the Lumber Companies in connection with the adjustment of other matters in difference between them and the Commission have requested the Commission to cancel both of said agreements to which the Commission has assented on the terms and conditions hereinafter set forth.

NOW THESE PRESENTS WITNESSETH that in consideration of the premises and of the sum of $1.00 now paid by the Lumber Companies to the Commission it has been and is hereby agreed between the parties as follows:

1. The said agreement dated 5th of June, 1906, as amended by the agreement dated January, 1910, and the said agreement dated 30th day of October, 1909, and each of them are hereby declared to be cancelled and to be at an end.

2. The Commission shall be entitled to retain for its own use and benefit the jack ladder referred to in said agreement dated 30th day of October, 1909, and the Lumber Companies and each of them do hereby release and surrender the said jack ladder and all their right, title and interest therein unto the Commission to hold the same absolutely.

3. The parties hereto hereby mutually release the others and each of their successors and assigns repectively of and from all sums of money, accounts, contracts, agreements, covenants, bonds, actions, proceedings, claims and demands whatsoever which any of them may have against the other for or by reason or in respect of the said agreements hereinbefore referred to or either or any of them in respect of any matter, cause, or thing whatsoever in the premises.

4. This agreement and everything herein contained shall enure to the benefit of and be binding upon the parties hereto, their successors and assingns respectively.

IN WITNESS WHEREOF the parties have cause these presents to be executed under their respective corporate seals and under the hands of the proper officers in that behalf.

SIGNED, SEALED AND DELIVERED in the presence of
E. B. RIDGE.

E. B. RIDGE.

EMPIRE LUMBER CO., LIMITED.
CHAS. D. WARREN,
President.
O. J. DONOGH,
Secretary-Treasurer.

THE IMPERIAL LUMBER CO., LIMITED.
CHAS. D. WARREN,
President.
O. J. DONOGH,
Secretary-Treasurer.

TEMISKAMING AND NORTHERN ONTARIO RY COM'N.
J. L. ENGLEHART,
Chairman.
A. J. MCGEE,
Secretary-Treasurer.

MEMORANDUM OF AGREEMENT made this 30th day of June, in the year of our Lord one thousand nine hundred and fourteen.

BETWEEN:

HIGHLAND TELEPHONE COMPANY hereinafter called the Company.

—and—

TEMISKAMING & NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WHEREAS the Company operates a telephone system in the District of Temiskaming, in the Province of Ontario, and the Commission operates a long distance telephone system along its line of railway;

AND WHEREAS subject to the terms hereinafter stated the parties have agreed to an interchange of telephone conversations and messages between their systems;

NOW THESE PRESENTS WITNESS that the agreement between the parties in the premises is as follows:

1. The Company agrees to permit and provide in its telephone office in the Township of Kerns, the equipment necessary for an interchange of telephone conversations and messages between the telephone systems of the parties under the general rules of the Commission and at the charges hereinafter provided for.

2. The Company shall erect at its own cost a metallic circuit connecting its office in the Township of Kerns with the long distance circuit of the Commission through the Commission's station at Uno Park. This circuit shall be erected under the supervision of the Commission's superintendent of telegraphs and telephones.

3. The Company shall equip at least one cord circuit of its switch board in its central office through which connections are made with the lines of the Commission with repeating coils of a type to be approved by the said Superintendent of telegraphs and telephones and in no case shall the Company permit any grounded circuit to be connected with the Commission's line except by the use of the cord circuit so equipped.

4. Each party shall maintain its telephone lines and the instruments and apparatus connected therewith in good working order, and shall make repairs thereto with all reasonable dispatch and shall use in connection with its telephone system only standard long distance telephones.

5. Each party shall keep on file with the other a list of the toll charges for their respective lines and the charges made for all interchanged business shall, so far as the parties hereto are concerned, be the sum of the regularly established rates of the parties.

6. Neither party shall have the right to transmit any message free over the lines of the other party.

7. Each party shall be entitled to enforce a reasonable messenger service charge for the delivery of messages to non-subscribers or for calling non-subscribers to the telephone.

8. The Company shall be provided with connection with the long distance lines of the Commission only during the regular hours the Commission's office at Uno Park shall be open for business.

9. The Company shall keep an accurate record in such form as shall be required by the Commission of all telephone traffic originating upon the telephone system of the Company and passing over the lines of the Commission; also of all traffic originating upon the lines of the Commission or upon the lines of other telephone systems with which the lines of the Commission may connect and passing over the lines of the Company for the use of which a toll charge is payable to the Company. A copy of such record shall, on or before the 10th day of each month be furnished by the Company to the Commission's agent at Uno Park, in respect of the preceding month, and the Commission's agent with the aid of such record shall within ten days from the receipt thereof prepare and deliver to the company a statement showing an adjustment of accounts between the parties in respect of such preceding month and the balance payable by one party to the other shall be payable forthwith on delivery of such account. All statements shall be subject to correction and verification and for this purpose the books and records of each of the parties shall be open for inspection by the other party. The Commission's agent at Uno Park shall make all connections and shall time all conversations and messages interchanged and shall decide the rates to be charged thereon in accordance with the provisions of this agreement.

10. Each party shall retain the amount of its line charge on all messages which may be transmitted over the lines of both parties between stations on the system of the Commission and stations on the system of the Company.

11. The Company shall indemnify the Commission against all claims for amounts due or alleged to be due to the proprietor of other telephone systems for long distance tolls, terminal fees or messenger charges for services furnished to the Company's subscribers.

12. Neither party shall be liable to the other for any error in sending messages or for the failure of any conversation whether it be the fault of the operator, agent or other person or from any other cause whatever, and each party shall be liable (if there be any liability) for any accident, damage, losses or costs occurring in or incurred at or on its lines or instruments.

13. Each of the parties shall have the right to refuse to allow or accept calls or business to or from any office or subscriber on the system of the other whose telephone equipment in its estimation is not in proper order to give satisfactory service or if the lines and apparatus are not maintained in an efficient condition to give good talking results.

14. Official railway business shall at all times be entitled to precedence over other business on the Commission's lines.

15. Should the Commission find it necessary to load or otherwise improve its long distance telephone system in order to carry on satisfactory long distance telephone conversations the Company shall make such changes in its telephone system as shall be necessary to enable the maximum benefit of such loading to be obtained.

16. This agreement shall not be transferable by either party without the consent in writing of the other party and shall continue in force for one year from the date thereof and thereafter until terminated by written notice of not less than three months by one party to the other, and on the expiration of the time limited by such notice, either of the parties shall be entitled to disconnect the circuits connecting the offices of the Company with the lines of the Commission.

17. In case the Company shall commit a wilful breach of this agreement or any part thereof or shall be guilty of any misconduct in the collection or handling of tolls or shall otherwise act in any manner inconsistent with or contrary to the good faith which ought to be observed between the parties the Commission shall have the right to preemptorily terminate this agreement, in which case all the right and interest of the Company hereunder shall thereupon cease and be at an end.

IN WITNESS WHEREOF the Company has executed these presents and the Commission has affixed its corporate seal under the hands of its proper officers in that behalf.

SIGNED, SEALED AND DELIVERED in the presence of:

JESSIE TREVAIL.

F. J. ARMSTRONG,
President.

SILVANUS TREVAIL,
Secretary.

TEMISKAMING AND NORTHERN ONTARIO RY. COM'N.

J. L. ENGLEHART,
Chairman.

A. J. MCGEE,
Secretary-Treasurer.

MEMORANDUM OF AGREEMENT made this twenty-third day of March, in the year of our Lord one thousand nine hundred and fourteen.

BETWEEN:

THE ALGOMA STEEL CORPORATION, LIMITED, hereinafter called the Contractor.

—and—

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WITNESSETH:

1. The Contractor agrees to furnish and deliver to the Commission free on board cars on the tracks of the Commission's Railway at North Bay as hereinafter specified 1,500 gross tons of 80 pound steel rails in strict compliance with the specifications hereto attached relating to 80 pound rails, for the price of $34.00 per gross ton of 2,240 pounds f.o.b. cars at North Bay.

2. No. 2 rails will be accepted to the extent of five per cent. of the whole order and at a price five per cent. less than paid for No. 1 rails.

3. The said steel rails shall be delivered on or before the 31st day of May, 1914, time being agreed to be strictly of the essence of this contract.

4. In the event of stoppage or partial stoppage of the works of the Contractor or of shipments being delayed through strikes, accidents, breakage of machinery or other cause beyond the Contractor's control (of which the Commission shall be promptly notified) or in case any shipment or any part thereof shall be lost in transit the Contractor shall be entitled to such additional time in respect of the whole or any part of said steel rails as the Chief Engineer of the Commission for the time being shall decide and certify in writing to be fair and reasonable having reference to the character and duration of such stoppage, delay or loss, and such Engineer shall be the sole and final judge as to the additional time to be allowed and as to what part of said steel rails same shall extend, and his decision in every such case shall be absolutely final and binding upon both parties. The last preceding clause of these presents shall be construed so far as relates to any portion of said steel rails affected by such extension of time as if the time fixed by the Engineer were the time fixed in said clause.

5. The Contractor shall give written notice to the Commission at its office in Toronto of the commencement of rolling at least eight days in advance of such commencement and shall similarly give written notice to the Commission at its office in Toronto of the resuming of the work after its temporary suspension at least two clear days before such resuming.

6. The written certificate of the Inspector of the Commission provided for by said specifications certifying that the rails have been manufactured to his satis-

faction in accordance with this contract and the said specifications shall be a condition precedent to the right of the Contractor to receive and be paid the price herein agreed to be paid for the same.

7. In case default shall be made by the Contractor in delivery of any of the said rails in accordance with the terms of this contract and the continuance of such default for thirty days, the Commission may at its option cancel this contract, but the Contractor shall, nevertheless, remain liable for all loss which may be suffered by the Commission by reason of the non-completion by the Contractor of this contract provided, however, that credit shall be given to the Contractor notwithstanding such cancellation for the price of all rails which shall have been delivered by the Contractor in accordance with this contract and said specifications.

8. The cost of inspection provided for by the specifications shall be borne by the Commission.

9. The Commission in consideration of the premises agrees to pay in Toronto funds for each shipment of said rails upon the arrival thereof at North Bay on presentation of invoices and certificate of the Inspector of the Commission attached to each draft provided this shall not require the Commission to pay for any rails at any earlier date than the date of delivery hereby fixed.

IN WITNESS WHEREOF the said parties have caused these presents to be executed under their respective corporate seals and the hands of the proper officers in that behalf.

R. Irwin,
Witness.

The Algoma Steel Corporation,
Limited.
J. Frater Taylor.
President.

The Temiskaming and Northern
Ontario Railway Commission.
J. L. Englehart,
Chairman.

A. J. McGee,
Secretary-Treasurer.

MEMORANDUM OF AGREEMENT made this 28th day of May in the year of our Lord one thousand nine hundred and fourteen.

BETWEEN:

HIGHLAND TELEPHONE COMPANY hereinafter called the Company.

—and—

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WHEREAS the Company operates a telephone system in the District of Temiskaming and has requested the Commission to permit it to install a telephone in the Commission's station at Uno Park to which the Commission has assented upon the terms and conditions hereinafter set forth.

NOW THESE PRESENTS WITNESS that the agreement between the parties in the premises is as follows:

1. Subject to the terms and conditions hereinafter stated, the Commission agrees to permit the Company to install one telephone instrument in the station of the Commission at Uno Park, such telephone when installed to be for the use of the Company and its subscribers and customers.

2. The installation of said telephone including all necessary wiring, poles and other equipment shall be done at the expense of the Company and in such manner, at such times and in such places as shall be directed and approved by the Commission's superintendent of telegraphs and telephones from time to time and the said Company hereby agrees with the Commission to maintain and repair said telephone and equipment connected therewith at all times under the supervision and to the satisfaction and approval of the superintendent of telegraphs and telephones of the Commission from time to time.

3. The Commission's agent at Uno Park shall have full control and charge of the telephone when installed in the Commission's station, but the Commission shall under no circumstances be liable for any loss or damage occasioned to any person or corporation by reason of any matter or thing done or omitted to be done by the agent of the Commission or otherwise in connection with the use and operation of said telephone and equipment and the said Company hereby agrees to indemnify the Commission of, from and against any and all such claims, it being understood and agreed that the installation of said telephone in the Commission's station as aforesaid shall be for the convenience of the subscribers and customers of the Company, and the Commission assumes no responsibility whatsoever in connection therewith.

4. The Commission hereby reserves the right to permit any other telephone company to install a telephone in said station or to permit any such other telephone company to make a joint connection with the Company's telephone at said station upon such terms and conditions as the Commission may deem advisable.

5. The Commission reserves the right to terminate this agreement at any time without notice to the Company and on such termination the said Company, upon being notified so to do, shall forthwith remove said telephone from the Commission's station and the Commission shall be entitled to disconnect the telephone line of the Company and thereafter all the rights and interest of the Company hereunder shall thereupon cease and be at an end.

6. This agreement and everything herein contained shall enure to the benefit of and be binding upon the parties hereto, their successors and assigns respectively.

IN WITNESS WHEREOF the Company has hereunto executed these presents and the Commission has hereunto affixed its corporate seal under the hands of its proper officers in that behalf.

SIGNED, SEALED AND DELIVERED
in the presence of

M. R. DOHERTY.

S. TREVAIL,
President.

F. J. BOADWAY,
Secretary-Treasurer.

TEMISKAMING AND NORTHERN ONTARIO RY. COM'N.

J. L. ENGLEHART,
Chairman.

A. J. MCGEE,
Secretary-Treasurer.

AGREEMENT made this 16th day of September, nineteen hundred and fourteen.

BETWEEN:

THE MUNICIPAL CORPORATION OF THE TOWN OF ENGLEHART.

Of the First Part.

—and—

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION.

Of the Second Part.

WHEREAS the parties of the First Part are installing water works and sewerage systems within the limits of their said Municipality;

AND WHEREAS the parties of the Second Part are the owners of a large amount of property within the limits of the said town, but the said property being Government land is exempt from municipal taxes;

AND WHEREAS although the said property belonging to the parties of the Second Part is so exempt from taxation, the said parties of the Second Part have agreed with the said parties of the First Part to pay a portion of the expenses of so installing the said systems on certain terms and conditions:

It is therefore agreed by and between the parties hereto as follows:

1. The said water works and sewerage systems so to be constructed within the limits of the said municipality, are to be laid out in such manner as to be of the fullest advantage to the property belonging to the said parties of the Second Part in the said town, and the said parties of the Second Part are to have the right to specify the streets in the said town along which they are desirous of having the said water works and sewerage systems constructed.

2. The parties of the Second Part are to have the right to connect all buildings belonging to them within the limits of the said town with the said water works and sewerage systems in whatever manner the said parties of the Second Part desire.

3. The parties of the Second Part are to be supplied by the parties of the First Part at all times with all water which may be required by the said parties of the Second Part, for the purposes of their railway, such water to be paid for by the parties of the Second Part at the actual cost of pumping same.

4. The said water works and sewerage systems so to be constructed in the said municipality by the parties of the First Part must fully cover and satisfy all the requirements of the said parties of the Second Part within the limits of the said town and all work so performed by the said parties of the First Part either in connection with the said water works system or the said sewerage system must be done with the approval and consent, and subject to the inspection of the Chief Engineer of the parties hereto of the Second Part.

5. In consideration of the parties of the First Part fulfilling the requirements hereinbefore specified, the parties of the Second Part agree to contribute the sum of fifteen thousand dollars ($15.000) towards the construction of the said water works and sewerage systems, such moneys to be paid out by the parties of the Second Part in monthly instalments whilst the work progresses, in the proportion of one-third of the actual cash disbursements of the parties of the First Part each month in connection with the said work, as shown on the monthly certificate of the Town Engineer, and approved of by the Chief Engineer of the parties of the Second Part, but the total of such monthly payments are not to exceed in all the said sum of fifteen thousand dollars.

6. This agreement refers only to plans for the said work which have been filed by the parties of the First Part with the parties of the Second Part, and which said plans have been approved of by the Chief Engineer of the said parties of the Second Part.

7. This agreement is to be binding not only on the parties hereto, but also on their respective successors and assigns.

IN WITNESS WHEREOF the parties hereto have hereunto set their hands and seals.

SIGNED, SEALED AND DELIVERED
in the presence of

A. W. SKINNER,
Mayor.

FABIAN HUGH,
Clerk.

JAS. SINTON.

TEMISKAMING AND NORTHERN ONT. RY. COM'N.

J. L. ENGLEHART,
Chairman.

A. J. McGEE,
Secretary-Treasurer.

THIS AGREEMENT made in triplicate this 31st day of October, A.D. 1914.

BETWEEN:

DOMINION WHEEL AND FOUNDRIES, LIMITED, hereinafter called the Contractor.

—and—

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION hereinafter called the Commission.

WITNESSETH that in consideration of the mutual covenants and agreements herein contained and other good and valuable consideration the parties hereto have mutually agreed and do each agree with the other as follows

1. The Contractor agrees to sell and deliver to the Commission as and when ordered all the cast iron car wheels required by the Commission for the period of one year commencing the first day of November, 1914, such cast iron car wheels to be constructed in strict compliance with the Master Car Builders' rules and regulations and to the complete satisfaction of the Chief Engineer and Superintendent of Maintenance of the Commission, and the Commission agrees to purchase and pay for said cast iron car wheels at the rate or price of one dollar and sixty-five cents ($1.65) per hundred pounds.

2. The said cast-iron car wheels shall be delivered to the Commission free on board the Commission's tracks at the Town of North Bay.

3. The Contractor further agrees to sell and deliver to the Commission as and when ordered all the grey iron castings required by the Commission during the said period of one year, such iron castings to be constructed to the complete satisfaction of the Chief Engineer of the Commission, and the Commission agrees to purchase and pay for such grey iron castings at the rate of two dollars and twenty cents ($2.20) per hundred pounds.

4. The said grey iron castings shall be delivered to the Commission free on board the Commission's tracks at the Town of North Bay.

5. In consideration of the premises the Contractor agrees to purchase and the Commission agrees to sell for the period above-mentioned all the Commission's used cast-iron car wheels at the rate or price of sixteen dollars ($16.00) per gross ton, such used cast-iron car wheels to be delivered to the Contractor free on board the Commission's tracks at the Town of North Bay, and the Contractor further agrees to purchase and the Commission to sell all the Commission's cast scrap and malleable scrap iron at the rate or price of fourteen dollars ($14.00) per gross ton, such cast malleable scrap iron ore to be delivered to the Contractor free on board the Commission's tracks at the Town of North Bay.

6. It is further understood and agreed that this contract may at the option of the Commission be extended for a further period of one year from the expira-

tion thereof upon the same terms and conditions as herein provided, except that the price for cast iron car wheels to be delivered to the Commission by the Contractor shall be one dollar and sixty cents ($1.60) per hundred pounds instead of one dollar and sixty-five cents ($1.65) per hundred pounds as herein provided.

7. This agreement and everything herein contained shall enure to the benefit of and be binding upon the parties hereto, their successors and assigns respectively.

IN WITNESS WHEREOF the parties hereto have hereunto set their respective corporate seals under hands of the proper officers in that behalf.

SIGNED, SEALED AND DELIVERED
in the presence of

G. A. Woodley.

Dominion Wheel and Foundries Limited.

J. A. Kilpatrick,
President.
F. J. May,
Secretary-Treasurer.

Temiskaming and Northern Ont. Ry. Com'n.

J. L. Englehart,
President.

E. M. Moore.

A. J. McGee,
Secretary-Treasurer.

MEMORANDUM OF AGREEMENT made this 27th day of November, 1914.

Between:

THE MUNICIPAL CORPORATION OF THE TOWN OF COCHRANE, hereinafter called the Corporation.

—and—

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WHEREAS the Corporation has requested the Commission to permit the Corporation to use Norman Lake as a source of public water supply for the said Corporation and to lay a 10-inch water main under the station grounds of the Commission at the Town of Cochrane, all as shown on plan dated the 6th

day of September, 1911, a blue print of which is hereto attached, to which the Commission has assented on the terms hereof.

NOW THESE PRESENTS WITNESS that it has been agreed between the parties as follows:

1. The Commission hereby grants unto the Corporation full and free right and authority to take and draw by a pump or other means water from Norman Lake for the purpose of supplying water for the use of the Town of Cochrane with the right and authority to enter upon the lands of the said Commission and to sink and lay in, through and under the station grounds of the Commission a 10-inch cast-iron water main and other necessary mains, conduits, pipes and other conveniences requisite for the conveyance and distribution of water from said lake, and to construct, erect and maintain in and upon the thirty-three foot reserve, around the said Norman Lake a pumping station containing the machinery necessary for the operation of a public water works system; all of said work to be done at the cost and expense of the Corporation and to the satisfaction of the Chief Engineer of the Commission and to be carried on from time to time in the manner and at the times and places approved by the said Engineer.

2. The said pumping station, water mains, pipe lines, etc., after having been constructed and erected, shall be maintained by and at the expense of the Corporation.

3. The Corporation shall immediately repair any damage or injury which may be done to the tracks, grounds or other property of the Commission by reason of the work aforesaid, and shall from time to time promptly repair at its own expense any injury which may at any time be done to the said tracks or any of the said property by reason of the construction or use of such pumping station, water mains, water pipes, or any of them and in case of the failure of the Corporation to restore and repair any such damage same may be restored and repaired by the Commission and the Corporation will promptly pay to the Commission all costs and expenses thereof or connected therewith as same shall be certified by the Chief Engineer for the time being of the Commission whose certificate in the premises shall be final and conclusive upon both parties.

4. The Corporation will indemnify and save harmless the Commission from all costs, loss, charges, damages and expenses, if any, arising or to arise by reason either of the construction, operation or use of the said pumping station, water mains and water pipes or any of them.

5. The Corporation shall, during the term of this agreement, furnish service connections for the Commission's station, water tank, round houses, freight sheds and employees' houses at the Town of Cochrane, and shall supply the Commission with a continuous supply of water therefor.

6. The said supply of water shall be of a wholesome quality and suitable for all domestic and other purposes of the Commission and shall be delivered by the Corporation in sufficient quantity so as at all times to meet the reasonable demand for water not only for domestic use but for all purposes requisite for the Commission at the said Town of Cochrane.

7. The Corporation will at all times during the continuance of this agreement do all such things as may be necessary to ensure the Commission a constant supply of water of the quality and quantity hereinbefore mentioned, and with that object will from time to time enforce any statutory or other provisions or regulations for the time being in force for guarding against the pollution or fouling of the water in said Norman Lake.

8. For the purpose of measuring the amount of water supplied by the Corporation to the Commission, the Commission shall at its own expense construct and maintain and keep in good repair and working order and renew when necessary a suitable meter which shall at all reasonable times be open to the inspection and examination of the duly authorized officers of the Corporation.

9. The Commission will pay to the Corporation for all water used by the Commission under the provisions of this agreement at the rate of seven cents per thousand gallons, during the years 1913 and 1914, and at the rate of five and one-half cents per thousand gallons after the year 1914, payable quarterly on the first days of January, April, July and October in each and every year; provided always and it is hereby agreed and declared that if the Commission shall at any time hereafter be of the opinion that the said rate per thousand gallons is excessive or if and whenever any dispute or question shall arise between the Corporation and the Commission touching these presents or anything herein contained or the construction hereof of the rights, duties or liabilities of the parties hereunder, the matter in difference shall be submitted to and referred to arbitration in accordance with the provisions of the Arbitration Act or any statutory re-enactment or modification thereof for the time being in force.

10. The Commission reserves the right to fill in so much of the northerly end of the said Norman Lake as may be necessary or requisite for the construction of additional sidings for the Commission's railway south-west of the present siding leading to the Commission's coal chute, said last mentioned siding being at present used as a temporary main line of the Commission; it being understood and agreed that none of the material used by the Commission for the purpose of filling in shall be of such a character or nature as to contaminate or pollute the water of said lake.

11. This agreement shall be determinable at the option of the Commission by the giving to the Corporation of six months' notice in writing to that effect, such notice to be left for, or mailed by registered post in an envelope addressed to the Mayor for the time being, of the said Corporation. On or before the date fixed by such notice the Corporation shall remove said pumping station, and all water mains, water pipes or other appliances running in, through, upon or under the property of the said Commission and shall restore the tracks and premises of the Commission to the same condition as same would have been had said pumping station, water mains, etc., not been constructed and erected, and in case of the failure of the Corporation so to remove the same and to restore said premises as aforesaid and to make necessary repairs to said pumping station, water mains, water pipes, etc., may thereupon be taken up and removed and said premises restored as aforesaid and necessary repairs made by the Commission and the Corporation will promptly pay to the Commission all costs and expenses

thereof or connected therewith as same shall be certified by the Chief Engineer for the time being of the Commission whose certificate in the premises shall be final and conclusive upon both parties.

IN WITNESS WHEREOF the parties have caused these presents to be executed under their respective corporate seals and the hands of the proper officers in that behalf the day and year first above written.

SIGNED, SEALED AND DELIVERED
E. W. HARDMAN.

MUNICIPALITY OF COCHRANE.
A. T. H. TAYLOR,
Mayor of Cochrane.

H. J. BROWN,
Clerk.

TEMISKAMING AND NORTHERN ONT. RY. COM'N.

A. B. ODLUM.

J. L. ENGLEHART,
Chairman.
A. J. MCGEE,
Secretary-Treasurer.

THIS AGREEMENT made the tenth day of October, in the year of our Lord one thousand nine hundred and fourteen.

BETWEEN:

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION hereinafter called the Lessor.

—and—

THE MINING CORPORATION OF CANADA, LIMITED, hereinafter called the Lessee.

WHEREAS by a certain Indenture of Lease dated the 16th day of May, 1906, the said Lessor demised and leased unto the Cobalt Townsite Mining Company, Limited, for the purposes and upon and subject to the terms, conditions and stipulations contained in said lease the lands, veins, seams, beds and deposits of metals and mineral ores in said Indenture of Lease described.

AND WHEREAS the parties thereto by an Agreement dated the 10th day of February, 1911, did agree to amend said Indenture of Lease as therein provided.

AND WHEREAS the parties thereto by an Agreement dated the 21st day of November, 1912, did agree to further amend said Indenture of Lease as therein provided.

AND WHEREAS the parties thereto by an agreement dated the 29th day of February, 1913, did agree to further amend said Indenture of Lease as therein provided.

AND WHEREAS the parties thereto by an Agreement dated the 10th day of February, 1914, did agree to further amend said Indenture of Lease as therein provided.

AND WHEREAS by an Indenture of Assignment dated the 15th day of April, 1914, the said the Cobalt Townsite Mining Company, Limited, did assign, with the consent of the Lessor, the said Indenture of Lease dated the 16th day of May, 1906, to the said Lessee.

AND WHEREAS by a certain Indenture of Lease bearing date the 18th day of March, 1907, the said Lessor demised and leased unto the City of Cobalt Mining Company, Limited, for the purposes and upon and subject to the terms, conditions and stipulations contained in said lease, the lands, veins, seams, beds and deposits of metals and mineral ores in the said Indenture of Lease described.

AND WHEREAS by a certain other Indenture between the said parties, dated the 29th day of February, 1908. The City of Cobalt Mining Company, Limited, upon and subject to the terms in said last mentioned Indenture set out, surrendered to the Lessor part of the lands demised by said Indenture of Lease of the 18th day of March, 1907, being lots 440 and 441 according to a Plan recorded in the Office of Land Titles at North Bay as Plan M. 47, except all veins, seams, beds, and deposits of metals and mineral ores thereon.

AND WHEREAS by a certain other Indenture of Lease bearing date the 3rd day of November, 1908, the said Lessor demised and leased unto the said the City of Cobalt Mining Company, Limited, the lands, veins, seams, beds and deposits of metals and mineral ores in said Indenture of Lease described upon and subject to the terms, conditions and stipulations therein set out and did agree to amend the said Indenture of Lease dated the 18th day of March, 1907, as therein provided.

AND WHEREAS the parties thereto by an Agreement dated the 30th day of April, 1913, did agree to further amend said Indenture of Lease dated the 18th day of March, 1907, as therein provided.

AND WHEREAS by an Indenture of Assignment dated the 15th day of April, 1914, the said the City of Cobalt Mining Company, Limited, did assign to the Lessee, with the consent of the Lessor, the said Indenture of Lease dated the 18th day of March, 1907, as amended by said Indenture of Lease dated the 3rd day of November, 1908, and as further amended by said Agreement dated the 30th day of April, 1913, and the said Indenture of Lease dated the 3rd day of November, 1908.

AND WHEREAS by a certain Indenture of Lease dated the 20th day of October, 1908, the said Lessor demised and leased unto Adolph Rosenthal of the City of Ottawa, jeweller, and John Proctor Dickson of the said City of Ottawa, broker, for the purposes and upon and subject to the terms and conditions and stipulations contained in said Lease the lands, veins, seams, beds and deposits of metals and mineral ores in said Indenture of Lease described.

AND WHEREAS by a certain Indenture of Assignment dated the 7th day of November, 1908, the said Adolph Rosenthal and John Proctor Dickson with the consent of the Lessor, did assign said Indenture of Lease dated the 20th day of October, 1908, unto the Cobalt Station Grounds Mining Company, Limited,

AND WHEREAS by an Agreement dated the 15th day of February, 1911, made between the Lessor and said the Cobalt Station Grounds Mining Company, Limited, the parties thereto did agree to amend said Indenture of Lease dated the 20th day of October, 1908, as in said Agreement provided.

AND WHEREAS by an Indenture of Assignment dated the 30th day of March, 1912, the said Cobalt Station Grounds Mining Company, Limited, with the consent of the Lessor, did assign said Indenture of Lease dated the 20th day of October, 1908, to Townsite Extension Mines, Limited.

AND WHEREAS by an Indenture of Assignment dated the 23rd day of March, 1914, the said Townsite Extension Mines, Limited, did assign, with the consent of the Lessor, the said Indenture of Lease dated the 20th day of October, 1908, to the said Lessee.

AND WHEREAS the parties hereto have agreed to further amend said Leases dated the 16th day of May, 1906, the 18th day of March, 1907, the 3rd days of November, 1908, and the 20th day of October, 1908, respectively.

NOW THESE PRESENTS WITNESS that it has been and is hereby agreed between the parties as follows:

1. Said Indenture of Lease dated the 16th day of May, 1906, made between the Lessor and the Cobalt Townsite Mining Company, Limited, as amended by said agreements dated the 10th day of February, 1911, the 21st day of November, 1912, the 29th day of February, 1903, and the 10th day of February, 1914, respectively, is hereby amended by striking out paragraph 4 and inserting the following paragraph in lieu thereof:

4. The Lessee shall pay the said annual rental of $1.00 as and when payable as aforesaid and shall further render and pay to the Lessor at the times and in the manner hereinafter provided as further rent in addition to the said sum of $1.00 per annum seven and one-half per cent. of the profits ascertained as hereinafter provided of the mining operations carried on under this lease from 1st day of July, 1914, up to and including the 1st day of September, 1915, and thereafter as further rent in addition to the said sum of $1.00 per annum, five per cent. of the profits ascertained as hereinafter provided of the mining operations carried on under this lease.

2. Paragraph 5 (*b*) of said Indenture of Lease dated the 16th day of May, 1906, made between the Lessor and the Cobalt Townsite Mining Company, Limited, as amended as aforesaid is hereby struck out and the following paragraph inserted in lieu thereof.

5. (*b*) Should the Lessee purchase, build, set up, establish or otherwise acquire a concentrating plant to treat the metals, minerals or ores on the

demised premises it shall wholly bear the expense thereof and incident thereto and shall not be entitled to make any deduction in respect of either the cost of building, setting up or establishing or of operating, superintending or overseeing same or for depreciation in respect thereof or for insurance thereof, but shall be entitled instead (subject to the provisions hereinafter contained) to make and deduct a charge of $3.00 per ton for each ton treated in such concentrating plant, provided the method used is mechanical concentration by means of crushing and pulverizing and subsequent treatment on various separators or concentrating machines substantially as now practiced in different concentrating plants at or near Cobalt. Should the method of treatment include in addition to such mechanical concentration, chemical treatment by means of solution or smelting to such an extent as to constitute an essential part of the operation, the owners may make a charge based upon the cost of such operation with the addition of $1.00 per ton, provided that the total charge for both mechanical and chemical treatment shall not in any case, or at any time, exceed $7.00 per ton for each ton so treated. The resulting concentrates, bullion or product of any kind from such treatment shall be considered as ores, metals or minerals. The Lessee, however, agrees and expressly guarantees that the aggregate value of the concentrates, bullion or product of any kind obtained during any quarter shall show a sufficient average return from the operation of milling or concentrating for such quarter to make the Lessor's share of profits thereon as aforesaid for the period from 1st July, 1914, to 1st September, 1915, at least seven and one-half (7½) cents per ton and for the period thereafter at least five (5) cents per ton of the ore milled or concentrated during such quarter, failing which the Lessor's proportion of such profits in respect of such ore and mineral shall be arbitrarily fixed at seven and one-half (7½) cents per ton for the period from the 1st July, 1914, up to and including the 1st day of September, 1915, and at five (5) cents per ton for the period thereafter which amounts shall be payable respectively as additional rent or renders in respect of such ore so milled or concentrated.

3. Said Indenture of Lease made between the Lessor and the City of Cobalt Mining Company, Limited, dated the 18th day of March, 1907, as amended as aforesaid is hereby amended by striking out paragraph 4 thereof and substituting in lieu thereof the following:

4. The Lessee shall pay the said annual rental of one hundred and seventy-five dollars as and when payable as aforesaid, and shall further render and pay to the Lessor at the times and in the manner hereinafter provided as further rent in addition to the said sum of one hundred and seventy-five dollars per annum seven and one-half per cent. of the profits ascertained as hereinafter provided of the mining operations carried on under this lease, from the 1st day of July, 1914, up to and including the 1st day of September, 1915, and thereafter as further rent in addition to the said sum of one hundred and seventy-five dollars per annum, five per cent. of the profits ascertained as hereinafter provided of the mining operations carried on under this lease as amended by the Indenture between the parties hereto dated the 3rd day of November, 1908.

4. Paragraph 4 (*c*) of said Indenture of Lease dated the 18th day of March, 1907, made between the Lessor and the City of Cobalt Mining Company, Limited, as amended by said agreements dated the 3rd day of November, 1908, and 30th day of April, 1913, respectively, is hereby struck out and the following paragraph inserted in lieu thereof.

4. (*c*) Should the Lessee purchase, build, set up, establish or otherwise acquire a concentrating plant to treat the metals, minerals or ores on the demised premises it shall wholly bear the expense thereof and incident thereto, and shall not be entitled to make any deduction in respect of either the cost of building, setting up or establishing or of operating, superintending or overseeing same or for depreciation in respect thereof, or for insurance thereof but shall be entitled instead (subject to the provisions hereinafter contained) to make and deduct a charge of $3.00 per ton for each ton treated in such concentrating plant provided the method used is mechanical concentration by means of crushing and pulverizing and subsequent treatment on various separators or concentrating machines substantially as now practised in different concentrating plants at or near Cobalt. Should the method of treatment include in addition to such mechanical concentration, chemical treatment by means of solution or smelting to such an extent as to constitute an essential part of the operation, the owners may make a charge based upon the cost of such operation, with the addition of $1.00 per ton, provided that the total charge for both mechanical and chemical treatment shall not in any case or at time exceed $7.00 per ton for each ton so treated. The resulting concentrate, bullion or product of any kind from such treatment shall be considered as ores, metals or minerals. The Lessee, however, agrees and expressly guarantees that the aggregate value of the concentrates, bullion or product of any kind obtained during any quarter shall show a sufficient average return from the operation of milling or concentrating for such quarter to make the Lessor's share of profits thereon as aforesaid for the period from 1st July, 1914, to 1st September, 1915, at least seven and one-half (7½) cents per ton and for the period thereafter at least five (5) cents per ton of the ore milled or concentrated during such quarter, failing which the Lessor's proportion of such profits in respect of such ore and mineral shall be arbitrarily fixed at seven and one-half (7½) cents per ton for the period from the 1st July, 1914, up to and including the 1st day of September, 1915, and five (5) cents per ton for the period thereafter which amounts shall be payable respectively as additional rent or renders in respect of such ore so milled or concentrated.

5. Said Indenture of Lease dated the 18th day of March, 1907, as amended as aforesaid is further amended by adding thereto as paragraph 4*c* (*a*) the following:

4*c* (*a*) should the Lessee at any time have any of the ore from the demised premises concentrated at any Customs concentrator, it shall in any such case be entitled to deduct the actual charges of such customs concentrator for concentrating such ore, not exceeding the deduction authorized by the last preceding section in the case of the Lessee's own concentrating plant for mechanical concentration or for mechanical concentration with chemical treatment added as the case may be and subject to the like guarantee of the aggregate value of concentrates as in said last preceding section provided.

6. The provisions of paragraphs 3, 4 and 5 hereof shall apply equally to the Indenture of Lease dated the 3rd day of November, 1908, as to the Indenture of Lease dated the 18th day of March, 1907.

7. Said Indenture of Lease dated the 20th day of October, 1908, made between the Lessor and Adolph Rosenthal and John Proctor Dickson as amended as aforesaid is hereby further amended by striking out paragraph 4 thereof and substituting in lieu thereof the following paragraph:

4. The Lessee shall pay the said annual rental of $2.00 as and when payable as aforesaid, and shall further render and pay to the Lessor during the said term at the times and in the manner hereinafter provided as further rent in addition to the said sum of $2.00 per annum seven and one-half per cent. of the profits ascertained as hereinafter provided of the mining operations carried on under this lease from the 1st day of July, 1914, up to the first day of September, 1915, and thereafter in addition to the said sum of $2.00 per annum five per cent. of the profits ascertained as hereinafter provided of the mining operations carried on under these presents.

8. Paragraph 4 (*c*) of said Indenture of Lease dated the 20th day of October, 1908, made between the Lessor and Adolph Rosenthal and John Proctor Dickson as amended as aforesaid, is hereby struck out and the following paragraph inserted in lieu thereof:

4. (c) Should the Lessee purchase, build, set up, establish or otherwise acquire a concentrating plant to treat the metals, minerals, or ores on the demised premises it shall wholly bear the expense thereof and incident thereto, and shall not be entitled to make any deduction in respect of either the cost of building, setting up or establishing or of operating, superintending or overseeing same or for depreciation in respect thereof or for insurance thereof, but shall be entitled instead (subject to the provisions hereinafter contained) to make and deduct a charge of $3.00 per ton for each ton treated in such concentrating plant, provided the method used is mechanical concentration by means of crushing and pulverizing and subsequent treatment on various separators or concentrating machines substantially as now practiced in different concentrating plants at or near Cobalt. Should the method of treatment include in addition to such mechanical concentration chemical treatment by means of solution or smelting to such an extent as to constitute an essential part of the operation the owners may make a charge based upon the cost of such operation with the addition of $1.00 per ton provided that the total charge for both mechanical and chemical treatment shall not in any case or at any time exceed $7.00 per ton for each ton so treated. The resulting concentrates, bullion or product of any kind from such treatment shall be considered as ores, metals or minerals. The Lessee, however, agrees and expressly guarantees that the aggregate value of the concentrates, bullion or product of any kind obtained during any quarter shall show a sufficient average return from the operation of milling or concentrating for such quarter to make the Lessor's share of profits thereon as aforesaid for the period from the 1st July, 1914, to 1st September, 1915, at least seven and one-half (7½) cents per ton and for the period thereafter at least five (5) cents per ton of the ore milled or concentrated during such quarter, failing which the Lessor's

proportion of such profits in respect of such ore and mineral shall be arbitrarily fixed at seven and one-half (7½) cents per ton for the period from the 1st July, 1914, up to and including the 1st day of September, 1915, and at five cents (5c.) per ton for the period thereafter which amounts shall be payable respectively as additional rent or renders in respect of such ore so milled or concentrated.

9. The said Indenture of Lease dated the 20th day of October, 1908, as amended as aforesaid is further amended by adding thereto as paragraph 4*c* (*a*) the following paragraph:

4*c* (*a*) Should the Lessee at any time have any of the ore from the demised premises concentrated at any Customs concentrator it shall in any such case be entitled to deduct the actual charges of such customs concentrator for concentrating such ore, not exceeding the deduction authorized by the last preceding section in the case of the Lessee's own concentrating plant for mechanical concentration or for mechanical concentration with chemical treatment added as the case may be and subject to the like guarantee of the aggregate value of concentrates as in said last preceding section provided.

10. Paragraph 5 (*d*) of said Indenture of Lease dated the 16th day of May, 1906, made between the Lessor and the Cobalt Townsite Mining Company, Limited, as amended as aforesaid and paragraphs 4 (*d*) of said Indenture of Lease made between the Lessor and the City of Cobalt Mining Company, Limited, dated the 18th day of March, 1907, as amended as aforesaid and of said Indenture of Lease dated the 20th day of October, 1908, made between the Lessor and Adolph Rosenthal and John Proctor Dickson as amended as aforesaid are hereby struck out and the following paragraph inserted in lieu thereof:

The Lessee shall deliver to the Lessor at its Office in Toronto on or before the tenth day after the expiration of each quarter a full and correct statement showing the additional rental or renders payable as aforesaid in respect of the mining operations of the Lessee during the preceding quarter, and shall pay such additional rental or renders on or before said tenth day of each quarter in respect of the last preceding quarter. The year shall be divided into four quarters, the first three of which shall consist of three, four weekly periods and the fourth of the balance of the year. The first of such quarters to be reckoned from the 1st day of January, and the last quarter to end on the 31st day of December in each year. The statements for the first three quarters of each year shall, however, be treated as interim adjustments, and in the statement for the quarter ending on the 31st day of December in each year there shall be an adjustment for the whole year, each of which yearly adjustments shall be final and not subject to further adjustments during any subsequent year.

11. In all other respects said Indentures of Lease dated the 16th day of May, 1906, the 18th day of March, 1907, the 3rd day of November, 1908, and the 20th day of October, 1908, respectively as heretofore and as hereby further amended are hereby confirmed.

12. It is hereby agreed between the parties hereto that the amendments hereby made shall take effect as of the 1st July, 1914.

IN WITNESS WHEREOF the parties have caused these presents to be executed under their respective corporate seals and under the hands of the proper officers in that behalf the day and year first above written.

SIGNED, SEALED AND DELIVERED in the presence of

E. M. Moore.

Temiskaming and Northern Ont. Ry. Com'n.

J. L. Englehart,
Chairman.

A. J. McGee,
Secretary-Treasurer.

The Mining Corporation of Canada, Limited.

W. R. P. Parker,
Second Vice-President.

G. M. Clark,
Director.

W. W. Perry,
Secretary-Treasurer.

Tenders for Construction Car Barns, North Cobalt.

Subject to recommendations Chief Engineer and Superintendent of Maintenance, contract awarded, Messrs. Sutcliffe & Neelands, New Liskeard, lowest tender, $17,382.20.

MEMORANDUM OF AGREEMENT made in duplicate this day of October, in the year of our Lord, one thousand nine hundred and thirteen.

Between:

HOMER W. SUTCLIFFE AND ERNEST W. NEELANDS, both of the Town of New Liskeard, in the District of Nipissing, carrying on business as Contractors under the firm name and style of SUTCLIFFE AND NEELANDS, hereinafter called the Contractors,

and

NIPISSING CENTRAL RAILWAY COMPANY, hereinafter called the Company.

Witnesseth:

1. In this contract the word "work" or "works" shall, unless the context requires a different meaning, mean the whole of the work and materials, matters and things required to be done, furnished and performed under this contract. The word "Engineer" shall mean the Chief Engineer for the time being appointed by the Company and having control over the work.

2. The Contractors will, at their own expense, provide all and every kind of work, labor, materials, articles and things whatsoever for the due construction and completion, and will well and duly build and complete in a perfect and workmanlike manner a CAR BARN at North Cobalt on the line of railway of the Company in such position as shall be indicated by the Engineer with all necessary appliances for use by the Company in connection with its railway, in strict compliance with the specifications hereto annexed and with the plans and drawings relating thereto to the complete satisfaction of the Engineer, and will deliver the same to the Company on or before the 31st day of December, 1913, time being agreed to be material and of the essence of this contract.

3. The Contractors shall forthwith commence work and shall proceed diligently therewith at the rate required by the Engineer, and shall complete the work, including extras and alterations, and notwithstanding any delay or hindrance by the Company to the satisfaction of the Engineer by the said date mentioned in the last preceding paragraph or by such other date as, on the written application of the Contractors for an extension of time, the Engineer may in writing substitute, and in default shall pay to the Company by way of liquidated damages the sum of fifty dollars for each day which may elapse after the said date or substituted date as aforesaid until the whole work shall be completed and delivered.

4. This agreement shall not be assigned nor shall the said work or any part thereof be sub-contracted without the written consent of the Chief Engineer to every such assignment or sub-contract.

5. The Engineer shall be at liberty at any time either before the commencement or during the construction of the works or any portion thereof to order any extra work to be done and to make any changes which he may deem expedient in the dimensions, character, nature, location or position of the works or any part or parts thereof, or in any other things connected with the works, whether or not such changes increase or diminish the work to be done or the cost of doing the same, and the Contractors shall immediately comply with all requisitions of the Engineer in that behalf and shall commence and complete the work so ordered to be done within the time specified by the Engineer, but the Contractors shall not make any change in or addition to or omission or deviation from the work and shall not be entitled to any payment for any change, addition or deviation or any extra work unless such change, addition, omission, deviation or extra work shall have been first directed in writing by the Engineer and notified to the Contractors, and the decision of the Engineer as to whether any such change or deviation increases or diminishes the work and as to the allowance to be made to the Contractors or deducted from the Contractors in respect of any such increase or diminution shall be final and all the provisions of this contract shall apply to any changes, additions, deviations, or extra work in like manner and to the same extent as to the work tendered for and no changes, additions, deviations or extra work shall annul or invalidate this contract and no compensation shall be claimable by the Contractors for any loss of anticipated profits in respect of or in consequence of any change or deviation in or omission from the works.

6. The Engineer shall be the sole judge of the work and material in respect of both quantity and quality, and his decision on all questions in dispute in regard to work and material shall be final, and no works or extra or additional works or

changes shall be deemed to have been executed nor shall the Contractors be entitled to payment for the same unless the same shall have been directed in writing as hereinbefore provided and executed to the satisfaction of the Engineer as evidenced by his certificate in writing which certificate shall be a condition precedent to the right of the Contractors to be paid therefor.

7. The Contractors shall be at the risk of and shall bear all loss or damage whatsoever which may occur to the works or any of them until the same be fully and finally completed and delivered up to and accepted by the Company, and if any such loss or damage occur before such final completion, delivery and acceptance the Contractors shall immediately, at their own expense, repair, restore and re-execute the work so damaged so that the whole works or the respective parts thereof may be completed within the time hereby limited.

8. The Contractors shall not at any time in connection with the said work or any matter arising out of or connected with this contract employ any person or persons in contravention of the Alien Labor Act or the provisions of the Railway Act of Ontario respecting employment of Alien Labor, and shall pay to all workmen, laborers and servants employed in or about the work such rates of wages as shall or may be currently payable to workmen, laborers or servants engaged in similar occupations in the district in which said work shall be performed, and shall be responsible for the observance by all sub-contractors on their part of the provisions of this clause and in the event of the Company (who shall be the sole, absolute and final judge of these matters) being satisfied at any time that the Contractors or any sub-contractors have been guilty of any violation of any of the provisions of this clause the Commission shall have the right from time to time, and as often as it shall be satisfied that any such violation has taken place, to withhold all payments from the Contractors until any such violation of any of the provisions of this clause shall, in the opinion of the Company, have ceased, and until such amends as the Company shall require shall have been made for all such violation it shall be the duty of the Engineer to withhold all certificates from the Contractors until the Company shall be satisfied that such violation has ceased and until amends shall have been made to the satisfaction of the Company as aforesaid.

9. Neither the acceptance nor the payment for said buildings by the Company shall be considered as any waiver of the obligations of the Contractors with reference thereto.

10. As security for the due performance, execution and completion of this contract by the Contractors the Contractors shall, upon the execution hereof, deposit with the Company the sum of $1,738.22.

11. The Company in consideration of the premises covenants with the Contractors that the Contractors from time to time and in all respects having fulfilled and performed the provisions of this contract on the Contractors' part intended to be fulfilled and performed shall be paid for in respect of the said work the sum of $17,382.20 as certified by the Engineer and subject to such deductions or additions as shall be certified by the Engineer based on the prices shown in the Contractors' tender for said work, copy of which is hereto annexed; payments to be made from time to time on progress certificates of the Engineer and final payments to be made within forty days after the date of the Engineer's final certificate of completion of said work.

12. It is distinctly agreed that no implied contract of any kind whatsoever by or on behalf of the Company shall arise or be implied from anything contained in this contract, including the said specifications and the plans and drawings or the tender of the said Contractors for said work or from any position or situation of the parties at any time, it being clearly understood and agreed that the express contracts, covenants, agreements and stipulations contained in these presents and in the said specifications, plans and drawings are and shall be the only covenants, agreements and stipulations upon which any right against the Company is to be founded; it being further expressly agreed that the said specifications and these presents are to be read together and that in case of any discrepancy between these presents and anything contained in such specifications the provisions of these presents shall govern. In case of discrepancy appearing at any time between the specifications, plans and drawings or any of them the Contractors shall follow such one of them as the Engineer shall in writing direct.

AS WITNESS the hand and seal of the said Contractors and the corporate seal of the said Company under the hands of its Chairman and Secretary.

SIGNED, SEALED AND DELIVERED
in the presence of:

(Sgd.) M. I. Herron.

(Sgd.) H. W. Sutcliffe,
Sgd.) Ernest W. Neelands,

Nipissing Central Railway Co.
J. L. Englehart,
President.

A. J. McGee,
Secretary-Treasurer.

(Seal.)

Tenders for Heating System—North Cobalt Car Barns.

Subject to recommendations Chief Engineer and Superintendent of Maintenance, contract awarded, S. J. Cherry, North Bay, lowest tender, $3,950.00.

MEMORANDUM OF AGREEMENT made in duplicate this 4th day of October, in the year of our Lord one thousand nine hundred and thirteen.

Between:

S. J. CHERRY, hereinafter called the Contractor.

and

NIPISSING CENTRAL RAILWAY COMPANY, hereinafter called the Company.

Witnesseth:

1. In this contract the word "work" or "works" shall, unless the context requires a different meaning, mean the whole of the work and materials, matters and things required to be done, furnished and performed under this contract. The word "Engineer" shall mean the Chief Engineer for the time being appointed by the Company and having control over the work.

2. The Contractor will, at his own expense, provide all and every kind of work, labor, materials, articles and things whatsoever for the due construction and completion, and will well and duly build and complete in perfect and workmanlike manner the whole of the heating equipment for the Company's car barn building at North Cobalt in strict compliance with the specifications hereto annexed, and with the plans and drawings relating thereto to the complete satisfaction of the Engineer, and will deliver the said heating equipment complete to the Company on or before the twentieth day of November, 1913; time being agreed to be material and of the essence of this contract.

3. The Contractor shall forthwith commence work and shall proceed diligently therewith at the rate required by the Engineer and shall complete the work, including extras and alterations and notwithstanding any delay or hindrance by the Company to the satisfaction of the Engineer by the date set out in the last preceding paragraph or by such other date as on the written application of the Contractor for an extension of time the Engineer may in writing substitute, and in default shall pay to the Company by way of liquidated damages the sum of twenty-five dollars for each day which shall or may elapse after the date mentioned in the last preceding paragraph or the date expressly substituted therefor in manner aforesaid by the Engineer until the whole work shall be so completed and delivered.

4. The Engineer shall be at liberty at any time either before the commencement or during construction of the works or any portion thereof to order any extra work to be done and to make any change which he may deem expedient in the dimensions, character, nature, location or position of the works or any part or parts thereof or in any other things connected with the works whether or not such changes increase or diminish the work to be done or the cost of doing the same, and the Contractor shall immediately comply with all requisitions of the Engineer in that behalf and shall commence and complete the work so ordered to be done within the time specified by the Engineer, but the Contractor shall not make any change in or addition to or omission or deviation from the work and shall not be entitled to any payment for any change, addition, deviation or any work unless such change, addition, omission, deviation or extra work shall have been first directed in writing by the Engineer and notified to the Contractor, and the decision of the Engineer as to whether any such change or deviation increases or diminishes the work and as to the allowance to be made to the Contractor or deducted from the Contractor in respect of any such increase or diminution shall be final, and all the provisions of this contract shall apply to any changes, additions, deviations or extra work in like manner and to the same extent as to the work tendered for and no changes, additions, deviations or extra work shall annul or invalidate this contract and no compensation shall be claimable by the Contractor for any loss of anticipated profits in respect of or in consequence of any change or deviation in or omission from the works.

5. The Engineer shall be the sole judge of the work and material in respect of both quantity and quality, and his decision on all matters in dispute in respect

to work and material shall be final and no works or extra or additional works or changes shall be deemed to have been executed, nor shall the Contractor be entitled to payment for the same unless the same shall have been directed in writing as hereinbefore provided and executed to the satisfaction of the Engineer as evidenced by his certificate in writing which certificate shall be a condition precedent to the right of the Contractor to be paid therefor.

6. The Contractor shall be at the risk of and shall bear all loss or damage whatsoever which may occur to the works or any of them until the same be fully and finally completed and delivered up to and accepted by the Company, and if any such loss or damage occur before such time for completion, delivery and acceptance the Contractor shall immediately, at his own expense, repair, restore and re-execute the work so damaged so that the whole works or the respective parts thereof will be completed within the time hereby limited.

7. In case the Contractor shall make default or delay in diligently continuing to execute or advance any of the works to be performed under this contract to the satisfaction of the Engineer, or shall make default in commencing any portion or portions of the work so complete same within the periods specified by the Engineer, as provided for in section three of this contract, and such default and delay shall continue for six days after notice in writing shall have been given by the Engineer to the Contractor requiring it to put an end to such default or delay, or in case the Contractor shall become insolvent or shall without the written consent of the Company make an assignment of this contract, or shall without the written consent of the Engineer make any sub-contract, or neglect personally to superintend the works, then and in any of such cases the Company may take all the work under this contract out of the Contractor's hands and employ such means as it may see fit to complete the work embraced in the contract, and in such case the Contractor shall have no claim for any further payment in respect of the work performed, but all things done and means employed under this section by the Company shall be as binding on the Contractor as if the things done and means employed had been done and employed by him under this contract, but the Contractor shall nevertheless remain liable for all loss or damage which shall be suffered by the Company by reason of the non-completion by the Contractor of the works, and no question or claim shall be raised or made by the Contractor by reason of or on account of the ultimate cost of the work so taken over proving greater than in the opinion of the Contractor it should have been, and all materials, articles and things whatsoever, and all machinery and other plant provided by the Contractor for the purposes of the work shall remain and be considered as the property of the Company for the purpose of the said works, and the Company may at its option sell or otherwise dispose of the whole or a portion of such materials, articles and things whatsoever, machinery and other plant, and may obtain the proceeds of such sale or disposition or a sufficient part thereof on account of or in satisfaction of any loss which it may have sustained by reason aforesaid.

8. Neither the acceptance nor the payment for the said heating equipment or any part thereof by the Company shall be construed as any waiver of the obligations of the Contractor with reference thereto.

9. The Company in consideration of the premises covenants with the Contractor that the Contractor from time to time and in all respects having fulfilled and performed the provisions of this contract on the Contractor's part intended to

be fulfilled and performed, will be paid for and in respect of said heating equipment the sum of three thousand nine hundred and fifty dollars ($3,950.00) subject to such deductions or additions as shall be certified by the Engineer, payments to be made from time to time on progress certificates of the Engineer and the final payment to be made within forty days after the date of the Engineer's final certificate of the completion of said work.

10. As security for the due performance, execution and completion of this contract by the Contractor, the Contractor shall upon the execution hereof, deposit with the Company the sum of $395.00.

11. It is distinctly agreed that no implied contract of any kind whatsoever, by or on behalf of the Company, shall arise or be implied from anything contained in this contract including the said specifications and the plans, and drawings or the tender of the said Contractor for said work or from any position or situation of the parties at any time, it being clearly understood and agreed that the express contracts, covenants, agreements and stipulations contained in these presents and in the said specifications, plans and drawings are and shall be the only contracts, covenants, agreements and stipulations upon which any right of action against the Company is to be founded: it being further expressly agreed that the said specifications and these presents are to be read together and in case of any discrepancy between these presents and anything contained in such specifications and provisions of these presents shall govern and in case of any discrepancy appearing at any time between the specifications, plans and drawings or any of them the Contractor shall follow such one of them as the Engineer shall in writing direct.

IN WITNESS WHEREOF this agreement has been duly signed, sealed and executed by the said Contractor and duly executed by the said Company under its corporate seal and the hands of its proper officers in that behalf.

SIGNED, SEALED AND DELIVERED
in the presence of:

G. H. Dickson.

S. J. Cherry.

Nipissing Central Railway Co.
J. L. Englehart,
President.

A. J. McGee,
Secretary-Treasurer.

Tenders Re New Inter-Urban Cars.

Tenders for construction of two 51 ft. interurban cars according to specifications Chief Engineer and Superintendent of Maintenance dated February 10th, 1914, received as follows:

	Quotation.	*Delivery.*
Canadian Car & Foundry Co.	$6,525 00	October, 1914.
McGuire, Cummings Mfg. Co.	8,010 00	Four months.
Ottawa Car Manufacturing Co.	6,779 00	June 1st, 1914.
National Steel Car Company	6,611 00	Not given.
Preston Car & Coach Co.	6,566 00	Four months.
Tillsonburg Electric Car Co.	6,822 25	Three months.

Contract awarded to Preston Car and Coach Co. their delivery being better than Canadian Car and Foundry Co.

Subsequent to awarding contract to Preston Car and Coach Co., representative of Manufacturers of Brill 27-MCB-2 trucks agreed to reduction in price of his trucks to the car manufacturers equal to $139.43 per car, which reduction was agreed to by the Preston Car and Coach Co., thereby making contract price $6,426.57 per car F.O.B. Commission's tracks, North Bay.

ARTICLES OF AGREEMENT made this 31st day of May, one thousand nine hundred and fourteen.

BETWEEN:

THE PRESTON CAR AND COACH COMPANY, LIMITED, hereinafter called the Contractor,

and

NIPISSING CENTRAL RAILWAY COMPANY, hereinafter called the Company.

WITNESSETH:

1. In this contract the word "Inspector" shall mean the Inspector for the time being appointed by the Company to represent and act for the Company in the supervision of the construction and in the inspection and certification of the cars hereinafter referred to.

2. The Contractor will supply and provide all and every kind of work, labor, materials, articles and things whatsoever for the due construction and completion, and will well and duly build and complete in a perfect and workmanlike manner two fifty-one foot double end interurban combination passenger, smoking and baggage cars with all necessary appliances for use on the line of the railway of the Company in strict compliance with the specifications hereto annexed and the plans relating thereto, to the complete satisfaction of the inspector and the Contractors will deliver the said cars, completed, to the Company, free on the railway tracks of the Temiskaming and Northern Ontario Railway Commission, at the Town of North Bay, on or before the 31st day of July, 1914, time being agreed to be material and of the essence of this contract, and in default of such delivery within the time aforesaid the Contractor will pay to the Company, by way of liquidated damages the sum of fifteen dollars ($15) in respect of each car, for each day which shall elapse after date aforesaid before delivery of such cars respectively, which sums the Company is authorized to deduct from the purchase price hereinafter mentioned. It is understood and agreed between the parties hereto that in the event of strikes, labor troubles, fire, delay in transmission or inability beyond the Contractor's control to obtain delivery of necessary materials or failure to receive necessary working details from the Company or from any other cause beyond the control of the Contractor, the said Contractor shall be exempted from strict compliance with the provisions of this agreement as to the time of delivery.

3. The Contractor will furnish and deliver to the Company at Toronto without extra charge, two complete sets of blueprints of all detailed plans of said cars, and

until delivery of such blueprints the Contractor shall not be deemed for the purpose of this contract to have delivered said cars or to be entitled to payment therefor.

4. The Inspector shall be the sole judge of all work and material done and supplied under this contract, and his decision on all questions in dispute with regard to any such work or material shall be final and the whole work shall be executed to his satisfaction as evidenced by his certificate in writing which shall be given before he allows the cars to leave the Contractor's works and which certificate shall be a condition precedent to the right of the Contractor to be paid therefor.

5. The Inspector and all persons from time to time authorized by him in that behalf shall have free entry and access to the works of the Contractor at all times while this contract is being performed, and shall have all reasonable facilities afforded to him and his representatives as aforesaid to satisfy him that same is being carried out and performed in accordance with this contract.

6. The acceptance and payment for one of said cars shall not be considered as any waiver of the obligation of the contractor with reference to the other of said cars.

7. The Contractor guarantees all parts, and particularly the following the enumeration of which is not in any way to limit the extent of this guarantee—all motor frames, wheels, springs, axles, centres, tires, rods and connections not to show signs of defect or weakness within one year's service under fair usage. The books or other records of the Company shall be taken as final and conclusive evidence of the times said motor frames, wheels, axles, etc., have lasted in service.

8. The Company in consideration of the premises covenants with the Contractor that the Contractor from time to time and in all respects having fulfilled and performed the provisions of this contract (except the fulfilment of the guarantee which is to continue for one year) on the Contractor's part intended to be fulfilled and performed shall be paid for each of the said cars the sum of six thousand four hundred and twenty-six dollars and fifty-seven cents ($6,426.57) within 30 days after delivery of each car F.O.B. tracks of Temiskaming and Northern Ontario Railway Commission at North Bay as aforesaid.

IN WITNESS WHEREOF the said parties having caused these presents to be executed under their respective corporate seals and under the hands of the proper officers in that behalf.

SIGNED, SEALED AND DELIVERED
in the presence of:

J. DECKER.

THE PRESTON CAR AND COACH CO.,
LIMITED,
Per DON. M. CAMPBELL,
General-Manager.

NIPISSING CENTRAL RAILWAY CO.,

J. L. ENGLEHART,
President.
A. J. McGEE,
Secretary-Treasurer.

THIS AGREEMENT made in duplicate the 29th day of November, 1913.

BETWEEN:

THE NIPISSING CENTRAL RAILWAY COMPANY hereinafter called the Company.

—and—

NORTHERN CUSTOMS CONCENTRATORS, LIMITED, hereinafter called the Shipper.

WHEREAS the Shipper is interested in a concentrating mill situated at or near Cobalt, in the Township of Coleman, and desires to have a railway siding built connecting said mill with the railway of the Company on the terms hereinafter mentioned, to which the Company has agreed.

NOW THEREFORE IT IS MUTUALLY AGREED between the parties as follows:

1. The Shipper shall construct and maintain a siding as shown on the plan hereto annexed, and the Company agrees to furnish the Shipper with such rails, fastenings, spikes, switch materials, trolley wire, poles, brackets and other appliances for overhead construction as may be requisite for such siding, but such rails, fastenings, spikes, switch materials, trolley wire, poles, brackets and other appliances when so furnished shall remain the property of the Company and the Shipper shall have the use of said siding upon the terms and conditions hereinafter specified.

2. The Shipper will under the supervision and to the satisfaction of the Company perform all the work requisite for the construction of said siding, including grading, ditching, cattle guards, culverts, bridging and fencing and shall furnish all ties, stop and safety blocks and other materials and implements necessary therefor (save and excepting rails, fastenings, spikes, switch materials, trolley wire, poles, brackets and other appliances for overhead construction to be furnished by the Company as aforesaid) and will pay all expenses and disbursements which may be incurred by the Company in connection therewith (save and except the cost of said rails, fastenings, spikes, switch materials, trolley wire, poles, brackets and other appliances for overhead construction) provided that with the view to the Shipper being recouped in the premises in case the Shipper shall within a reasonable time furnish the Company such freight business as to justify the Company in recouping such expenditure, the Shipper shall be allowed a rebate of $1.00 per car on all carload freight received from the Shipper or delivered to the Shipper on said siding within five years from the date hereof or until such expenditure without interest shall have been fully repaid, whichever shall first happen.

3. The Company agrees with the Shipper to lay and ballast the tracks and the Shipper agrees to pay the Company the cost of so doing as same shall be certified by the Chief Engineer for the time being of the Company, whose certificate of such cost shall be absolutely final, binding, and conclusive upon the

parties, and the Shipper further agrees with the Company that it will, during the period this agreement remains in force, pay as compensation to the Company for the use of the rails, fastenings, spikes, switch materials, trolley wire, poles, brackets and other appliances for overhead construction used in the construction of said siding and for the services of such of the Company's employees as may from time to time be engaged in moving any engine, motor or car or in any other kind of work on said siding in connection with the property or the business of the Shipper a rental equal to seven and one-half per cent. per annum on the value of such rails, fastenings, spikes, switch materials, trolley wire, poles, brackets and other appliances for overhead construction when installed by the Company as same shall be certified by the Chief Engineer for the time being of the Company, whose certificate of such value shall be absolutely final, binding and conclusive upon the parties; such rental shall be payable yearly in advance on the 1st day of the month of December in each year, and every employee of the Company while engaged as aforesaid, shall be held to be an employee of the Shipper, and the Shipper will indemnify the Company against every claim which may be made in respect of any of his acts or omissions while so engaged, and all cars, motors, engines or other property of the Company while upon the said siding for the purposes of or in connection with the business of the Shipper shall be held to be lent for the time being by the Company to the Shipper and shall be at the risk of the Shipper.

4. The Shipper agrees with the Company during the period this agreement remains in force to repair and maintain the said siding at all times to the satisfaction of the Chief Engineer from time to time of the Company.

5. The Company agrees from time to time to carry and transport such freight in carloads as may be delivered to it by the Shipper or delivered to it for transportation to the Shipper subject to the terms of the usual form of contract for transportation of such freight from time to time used by the Company and subject to the payment of such switching charges as shall from time to time be fixed by the Chief Freight and Passenger Agent from time to time of the Company.

6. The Shipper shall cause all cars delivered to it by the Company to be unloaded and loaded with despatch and such cars shall in no case be loaded with a greater weight than the capacity marked thereon or fixed by the Company. The Shipper shall be liable for and shall pay to the Company the usual demurrage charges as fixed by the Company from time to time.

7. The Shipper will during the period this agreement remains in force cause all freight shipped to or from any part of the premises of the Shipper to be shipped over the railway of the Company or the railway of the Temiskaming and Northern Ontario Railway Commission.

8. The times at which and the manner in which the said siding shall be used shall be regulated by the officials of the Company, provided always its control shall not interrupt the proper use of such siding for the business of the Shipper, and provided further that no switching shall be allowed on said siding between the hours of 5 a.m. and 12 p.m. midnight unless with the consent of the Company, and the Shipper shall arrange its unloading and storage facilities accordingly.

9. The Company shall at all times during the continuance of this agreement have the use free of charge of the said siding in so far as it will not be required for the use of the Shipper as aforesaid, and further the Company may permit the use of said siding by other parties (provided such use shall not interfere with the proper use of said siding for the business of the Shipper) upon proper compensation being paid to the Shipper such compensation to be determined by the Superintendent of Traffic for the time being of the Company whose decision shall be final.

10. The Company shall not be liable directly or indirectly on account of any injury or loss that may at any time occur in respect of the buildings, erections, materials or goods, chattels or other property of any kind whatsoever, either belonging to the Shipper or for the custody or safekeeping of which the Shipper could be in any way liable, in consequence of any loss or damage caused by defects in the plant or machinery of the Company or by the negligence of the Company or of any of its agents or servants or otherwise howsoever, nor shall the Company be liable for or in respect of any other loss of or injury to said siding or to any buildings, fence or other property whatsoever at any time on or used in connection with the said siding or the premises of the Shipper or for any loss or injury to any car or the contents of any car which has been placed on said siding for the Shipper, such loss or injury not having been caused by the negligence or default of the Company, its agents or employees, and the Shipper will hold the Company harmless against every claim by any person or persons whomsoever for any loss or injury which under the provisions of this agreement the Company shall not be liable, it being hereby declared that the assumption by the Shipper of the risk of all such injury and loss as aforesaid is one of the considerations for the execution by the Company of the present agreement and without which such execution would not have taken place; and the Shipper will indemnify the Company from all loss of or injury to any of its property while in or upon any portion of said siding or any of its buildings and premises caused otherwise than by the negligence of the Company, its agents or employees, and the Shipper will compensate the Company for all loss or damage caused to it or its plant or rolling stock by any default of the Shipper in the performance of any of the terms and conditions contained in the present agreement to be performed by the Shipper.

11. The Shipper will within thirty days after receipt of a written statement pay the Company all expenses of signals, signalmen and other like expenses at any time incurred by reasons of the use of said siding by the Shipper, and will in like manner pay to the Company all the costs and expenses which may be incurred by the Company in maintaining and keeping the said siding in good repair and condition, clear of snow and open for traffic.

12. The rights and privileges of the Shipper under this agreement shall not be transferred or sublet either in whole or in part except with the written consent of the Company, and in the event of such transfer or subletting taking place without such written consent, the present agreement shall at the option of the Company come to an end and be terminated from and after the date of such transfer or subletting.

13. Provided, and it is hereby expressly declared and agreed that if the Shipper shall at any time make default in payment of any money payable herein

and such default shall continue for the space of six calendar months or if any of the covenants herein contained on the part of the Shipper shall at any time or times during the continuance of this agreement be broken or unobserved, then and in every such case and notwithstanding the waiver of any previous default, it shall be lawful for the Company to enter into and upon the premises of the Shipper and remove therefrom all such rails, fastenings, spikes, switch materials, trolley wire, poles, brackets and other appliances for overhead construction and thereupon this agreement shall *ipso facto* terminate without notice or compensation of any kind to the Shipper; provided further that notwithstanding such determination or notwithstanding any determination in the last preceding clause of these presents, the Shipper shall continue and be liable to the Company for all moneys payable by the Shipper to the Company up to the time of such determination.

14. Provided also, that the Company shall have the right to terminate the present agreement at any time, upon giving to the other party notice in writing of its intention so to do and naming in such notice a day, at least two months after the giving of the notice on which the agreement is to terminate; and on the day so named, the present agreement shall *ipso facto* terminate, and from and after the day so named, the Shipper shall cease to have any right to use the said siding, or to pass upon the property of the Company upon which any part of the said siding is laid; and if it be terminated by notice as aforesaid during any year for which rental has been paid, then the Company shall repay the proper proportion of such rental. The notice above mentioned may be given by the Company by affixing it to some conspicuous part of the said premises of the Shipper.

15. The Shipper having paid all rental and cost of maintenance, signals, etc., and having in other respects carried out the terms of this agreement shall have the right to terminate same at any time, upon giving to the Company notice in writing of its intention so to do, and naming in such notice a day, at least two months after the giving of notice on which the agreement is to terminate, whereupon and upon payment by the Shipper to the Company of the cost of removal of rails, fastenings, spikes and switch materials, etc., as certified by the Chief Engineer for the time being of the Company, this agreement shall *ipso facto* terminate, and from and after such termination, the Shipper shall cease to have any right to use the said siding, or the property of the Company upon which any part of the said siding is laid and if it be terminated by notice as aforesaid during any year for which rental has been paid then the Company shall repay the proper proportion of such rental: but in case of termination of the agreement, either by the Shipper under this clause, or by the Company under the last preceding clause, or by reason of any breach by the Shipper of any of the provisions of this agreement, the Shipper shall not be entitled to any further rebate, or have any other right to be recouped for any of the expenditure of the Shipper hereunder.

16. Upon the determination of this agreement, the Company may forthwith remove from said siding all rails, fastenings, spikes, switch materials, trolley wire, poles, brackets and other appliances for overhead construction used for the purpose of said siding and it shall be its duty so to do within three months after the Shipper shall require it by written notice to that effect, and the Shipper hereby

agrees that the Company shall have and shall be able to execute in its full extent such right of removal and of retaining such materials as its own property.

17. These presents shall be binding upon and shall enure to the benefit of the successors and assigns of the parties hereto respectively.

IN WITNESS WHEREOF the parties hereto have hereunto affixed their respective corporate seals under the hands of their proper officers in that behalf, the day and year first above written.

SIGNED, SEALED AND DELIVERED in the presence of

NIPISSING CENTRAL RAILWAY CO.,
J. L. ENGLEHART,
President.
A. J. MCGEE,
Secretary-Treasurer.

NORTHERN CUSTOMS CONCENTRATORS, LIMITED.
A. J. YOUNG,
President.

A. B. ODLUM.

N. LAING,
Secretary-Treasurer.

MEMORANDUM OF AGREEMENT made in duplicate this day of October in the year of our Lord one thousand nine hundred and thirteen.

BETWEEN:

HOMER W. SUTCLIFFE AND ERNEST W. NEELANDS both of the Town of New Liskeard in the District of Nipissing, carrying on business as contractors, under the firm name and style of Sutcliffe & Neelands, hereinafter called the Contractors.

—and—

NIPISSING CENTRAL RAILWAY COMPANY hereinafter called the Company.

WITNESSETH:

1. In this contract the word "work" or "works" shall, unless the context requires a different meaning, mean the whole of the work and materials, matters and things required to be done, furnished and performed under this contract. The word "Engineer" shall mean the Chief Engineer for the time being appointed by the Company and having control of the work.

2. The contractors will at their own expense provide all and every kind of work, labor, materials, articles and things whatsoever for the due construction and completion and will well and duly build and complete in a perfect and workmanlike manner a Brick Sub-station Building, at North Cobalt on the line of railway of the Company in such position as shall be indicated by the Engineer

with all necessary appliances for use by the Company in connection with its railway in strict compliance with the specifications hereto annexed and with the plans and drawings relating thereto to the complete satisfaction of the Engineer.

3. The contractors shall forthwith commence work and shall proceed diligently therewith at the rate required by the Engineer and shall fully complete the work, including extras and alterations at the earliest date possible.

4. This agreement shall not be assigned nor shall the said work or any part thereof be sub-contracted without the written consent of the Chief Engineer to every such assignment or sub-contract.

5. The Engineer shall be at liberty at any time either before the commencement or during the construction of the works or any portion thereof to order any extra work to be done and to make any changes which he may deem expedient in the dimensions, character, nature, location or position of the works or any part or parts thereof or in any other things connected with the works whether or not such changes increase or diminish the work to be done or the cost of doing the same, and the contractors shall immediately comply with all requisitions of the Engineer in that behalf and shall commence and complete the work so ordered to be done within the time specified by the Engineer, but the contractors shall not make any change in or addition to or omission or deviation from the work and shall not be entitled to any payment for any change, addition, or deviation or any extra work unless such change, addition, omission, deviation or extra work shall have been first directed in writing by the Engineer and notified to the contractors and the decision of the Engineer as to whether any such change or deviation, increases or diminishes the work and as to the allowance to be made to the contractors or deducted from the contractors in respect of any such increase or diminution shall be final and all the provisions of this contract shall apply to any changes, additions, deviations or extra work in like manner and to the same extent as to the work tendered for, and no changes, additions, deviations or extra work shall annul or invalidate this contract and no compensation shall be claimable by the Contractors for any loss of anticipated profits in respect of or in consequence of any change or deviation in or omission from the works.

6. The Engineer shall be the sole judge of the work and material in respect of both quantity and quality, and his decision on all questions in dispute in regard to work and material shall be final and no works or extra or additional works or changes shall be deemed to have been executed nor shall the contractors be entitled to payment for the same unless the same shall have been directed in writing as hereinbefore provided and executed to the satisfaction of the Engineer as evidenced by his certificate in writing, which certificate shall be a condition precedent to the right of the contractors to be paid therefor.

7. The Contractors shall be at the risk of and shall bear all loss or damage whatsoever which may occur to the works or any of them until the same be fully and finally completed and delivered up to and accepted by the Company, and if any such loss or damage occur before such final completion, delivery and acceptance, the contractors shall immediately at their own expense, repair, restore

and re-execute the work so damaged so that the whole works or the respective parts thereof may be completed within the time hereby limited.

8. The contractors shall not at any time in connection with the said work or any matter arising out of or connected with this contract employ any person or persons in contravention of the Alien Labor Act or the provisions of the Railway Act of Ontario, respecting employment of alien labor, and shall pay to all workmen, laborers and servants employed in or about the work such rates of wages as shall or may be currently payable to workmen, laborers or servants engaged in similar occupations in the district in which said work shall be performed, and shall be responsible for the observance by all sub-contractors on their part of the provisions of this clause and in the event of the Company (who shall be the sole, absolute and final judge of these matters) being satisfied at any time that the Contractors or any sub-contractor have been guilty of any violation of any of the provisions of this clause the Company shall have the right from time to time and as often as it shall be satisfied that any such violation has taken place to withhold all payments from the contractors until any such violation of any of the provisions of this clause shall in the opinion of the Company have ceased and until such amends as the Company shall require shall have been made for all such violations and on being notified by the Company of any such violation it shall be the duty of the Engineer to withhold all certificates from the Contractors until the Company shall be satisfied that such violation has ceased and until amends shall have been made to the satisfaction of the Company as aforesaid.

9. Neither the acceptance nor the payment for said buildings by the Company shall be considered as any waiver of the obligations of the Contractors with reference thereto.

10. The Company in consideration of the premises, covenants with the Contractors that the Contractors from time to time and in all respects having fulfilled and performed the provisions of this contract on the Contractors' part intended to be fulfilled and performed shall be paid for in respect of the said work the sum of $1,038.20 as certified by the Engineer and subject to such deductions or additions as shall be certified by the Engineer based on the prices shown in the Contractors' tender for said work, copy of which is hereto annexed; payments to be made from time to time on progress certificates of the Engineer, and final payments to be made within forty days after the date of the Engineer's final certificate of completion of said work.

11. It is distinctly agreed that no implied contract of any kind whatsoever by or on behalf of the Company shall arise or be implied from anything contained in this contract including the said specifications and the plans and drawings or the tender of the said Contractors for said work or from any position or situation of the parties at any time, it being clearly understood and agreed that the express contracts, covenants, agreements and stipulations contained in these presents and in the said specifications, plans and drawings are and shall be the only covenants, agreements and stipulations upon which any right against the Company is to be founded: it being further expressly agreed that the said specifications and these presents are to be read together and that in case of any discrepancy between

these presents and anything contained in such specifications the provisions of these presents shall govern. In case of any discrepancy appearing at any time between the specifications, plans and drawings or any of them, the Contractors shall follow such one of them as the Engineer shall in writing direct.

AS WITNESS the hand and seal of the said Contractors and the corporate seal of the said Company under the hands of its Chairman and Secretary.

SIGNED, SEALED AND DELIVERED
in the presence of
M. I. HERRON.

H. W. SUTCLIFFE.
ERNEST W. NEELANDS.

NIPISSING CENTRAL RAILWAY CO.,
J. L. ENGLEHART,
President.

A. J. MCGEE,
Secretary-Treasurer.

Divine Service at Gregory's Narrows, Long Lake. These settlers compare favorably with the best in Old Ontario.

River Drivers at Work.

NIPISSING CENTRAL RAILWAY

ANNUAL REPORT OF CHIEF ENGINEER AND SUPERINTENDENT OF MAINTENANCE.

Year Ended October 31st, 1914.

A. J. McGee, Esq.,

Secretary-Treasurer,

Toronto, Ont.

Dear Sir,—I beg to submit my annual report, as Chief Engineer and Superintendent of Maintenance, for the fiscal year ending October 31st, 1914.

Construction.

Electrification—Kerr Lake Branch:

Arrangements were made by which the Kerr Lake Branch of the T. & N. O. Railway was to be leased to and operated by the Nipissing Central Railway. It was also necessary to lease an independent track through the T. & N. O. yard at Cobalt, from the former terminus of the N. C. R. at the Cobalt Station to Kerr Lake Junction, where connection was made with the Kerr Lake Branch. The overhead electric construction was installed by the N. C. R. It consists of 35 ft. cedar poles, 10 ft. trolley brackets, No. 4 grooved trolley wire and 500,000 C.M. aluminum feeder. All rails were bonded with standard type F-4 concealed bonds. On August 1st, the electrification of the branch was completed and a regular hourly passenger service to Kerr Lake Junction was established. This frequent service is a great convenience, particularly to the people living or working at Kerr Lake, and is greatly appreciated by them, as is evidenced by the very encouraging passenger traffic that has developed. The freight consigned to Kerr Lake or to the mines or concentrators, situated on the lines of the N. C. R. is handled to and from Cobalt by the Company. This arrangement has relieved the T. & N. O. Railway from the necessity of operating the Kerr Lake Branch and has enabled it to affect a considerable reduction in the cost of handling traffic within the limits of the Cobalt Mining Camp. The N. C. R. gives a more convenient and efficient service than could possibly be rendered by the T. & N. O. Railway.

Car Barn and Sub-stations:

The car barn and sub-stations described in last report, have been completed and are in operation.

The brick car barn at North Cobalt provides accommodation for eight cars and the facilities for their repairs. In the sub-station are installed 2—300 K.W. and 1—150 K.W. induction motor driven compound interpole generators. Transformer equipment consists of duplicate 635 K.V.A. 4,160—2,300 volts auto transformers.

The Cobalt sub-station contains duplicate 846 K.V.A. 2,300—4,160 volts, auto transformers. The Cobalt sub-station is adjacent to the Northern Ontario

Power Company's sub-station, from which 2,300 volt energy is obtained and raised to 4,160 volts, and transmitted to the North Cobalt sub-station over a double circuit No. 4-0, aluminum 3 phase transmission line.

Additional Equipment.

Two new double and interurban type cars have been received from the Preston Car and Coach Company. These cars are fifty-one feet long over all and have a combination smoking and baggage compartment at one end. They are equipped with M. C. B. type trucks with steel wheels and Canadian Westinghouse No. 306 quadruple motor equipment.

Maintenance.

The road, electrical equipment and rolling stock have all been maintained in good condition. The track and overhead construction are in much better condition than formerly, due to the liberal expenditures for maintenance that have been made since the N. C. R. was purchased by the T. & N. O. Railway Commission.

Additions and Betterments—Road.

The following sidings have been constructed:

Additional meeting sidings have been provided between Cobalt and North Cobalt and between North Cobalt and Haileybury, respectively. These permit the operation of fifteen-minute service between Haileybury and Cobalt.

Private spur sidings were built to serve the new Northern Customs Concentrator that was built at M.P. No. 104, a mile north of Cobalt. Practically all the ore treated at the Concentrator is handled by N. C. R. over these sidings.

A private siding, to hold four cars, was built for the Harris Tie and Timber Company, of Ottawa. This siding is at the Department of Public Works dock yard, a short distance north of Haileybury. It will be used for shipment of forest products brought in by water.

The mileage now operated is as follows:

Main Track:		
Owned and maintained by Company	4.92 miles	
Leased from T. & N. O. Ry. Comm'n.		
Maintained by Company	5.28 miles	
Maintained by Commission	5.17 miles	
Total Main Track		15.37 miles
Sidings and Spurs:		
Company Spurs	3.45 miles	
Private Spurs	1.11 miles	
Total Sidings and Spurs		4.56 miles
Total Track		19.93 miles

The rolling stock consists of the following:

8 double-end interurban type motor cars.
1 combined switching motor car and snowplow.
3 flat cars (work equipment).

Respectfully submitted,

S. B. CLEMENT,
C. E. & S. of M.

GENERAL BALANCE SHEET

ASSETS.			LIABILITIES.		
Property Owned:			Debit:		
Valuation of Road and Equipment to Oct. 31st, 1913	$292,954 18		Capital Stock		$530,000 00
Cost of Road and Equipment to Oct. 31st, 1914	76,678 10		Working Liabilities:		
		$369,632 28	Accounts Payable	$13,133 64	
Townsite Property, North Cobalt		245,160 00	Unclaimed Wages	124 01	
Working Assets:			T. & N. O. Railway Advance	229,194 16	
Cash	$12,766 43				242,451 81
Account Collectable	9,081 96		Free Surplus:		
Bills Receivable	157 36		Profit and Loss—Balance		27,397 97
Balance due on Townsite Sales	11,710 68				
Balance due from Agents and Conductors	569 49				
Material and Supplies	5,042 80				
		39,328 72			
Deferred Debit Items:					
Accounts in Suspense	$2,590 50				
Insurance paid in Advance	738 76				
		3,329 26			
Other Assets:					
Franchise		142,399 52			
		$799,849 78			$799,849 78

PROFIT AND LOSS.

Townsite Balance	$691 64	By Balance—October 31st, 1913	$67,182 35
Paid Treasurer of Ontario	25,000 00		
Interest on Moneys Advanced (T. & N. O.)	39,580 19	By Net Revenue:	
Balance Carried Forward	27,397 97	Operation	25,487 45
	$92,669 80		$92,669 80

Nipissing Central Railway.

Comparative Statement of Earnings, Expenditure and Result of Operation

For the Fiscal Years, Nov. 1, 1912, to Oct. 31, 1913, and Nov. 1, 1913, to Oct. 31, 1914.

REVENUE.	Per Cent.	November 1, 1912 to October 31. 1913.	Per Cent.	November 1, 1913 to October 31. 1914.
		$ c		$ c
I. Revenue from Transportation:				
Passenger Revenue	.....	83,618 72	.....	98,961 73
Baggage Revenue	.....	129 28	.....	373 75
Parlor, Chair and Special Car Revenue	.....	498 95	.....	467 50
Milk Revenue	.....	199 94	.....	307 02
Freight Revenue	.....	.....	.....	1,014 20
Switching Revenue	.....	427 61	.....	6,541 87
Totals	.....	84,874 50	.....	107,666 07
II. Revenue from operations other than transportation:				
Station and car privileges	.....	598 68	.....	515 03
Car Service Demurrage	.....	.....	.....	183 00
Rents of Track and Terminals	.....	.....	.....	186 00
Miscellaneous	.....	36 08	.....	2 57
Total	.....	634 76	.....	886 60
Total Revenue	.....	85,509 26	.....	108,552 67
EXPENDITURES.				
I. Maintenance of Way and Structures	9.2	7,886 29	11.9	12,974 22
II. Maintenance of Equipment	4.8	4,107 43	5.7	6,169 91
III. Traffic Expenses	.8	720 75	.7	722 24
IV. Transportation Expenses	38.6	33,007 51	37.9	41,176 77
V. General Expenses	3.9	3,308 14	20.3	22,007 08
Total Operating Expenses	57.3	49,030 12	76.5	83,050 22
Balance	.....	36,479 14	.....	25,502 45
DEDUCTIONS FROM INCOME.				
Taxes	.....	66 72	.....	15 00
Net result	.....	36,412 42	.....	25,487 45

NIPISSING CENTRAL RAILWAY.

Total Amount Expended on Construction and Equipment during Year November 1st, 1913, to October 31st, 1914.

Road.	
Engineering and superintendence	$1,087 93
Right of way	22 32
Grading	4,994 87
Ballast	862 98
Ties	Cr. 3 97
Rails, rail fastenings and joints	Cr. 3,485 78
Special work	1,927 32
Paving	2,481 33
Track laying and surfacing	782 52
Roadway tools	117 86
Bridges, trestles and culverts	985 73
Crossings, fences, cattle guards and signs	751 53
Telegraph and telephone lines	41 77
Poles and fixtures	5,901 08
Underground conduits	117 40
Transmission system	119 35
Distribution system	7,699 63
Dams, canals and pipe lines	3 19
Sub-station buildings	1,438 65
General office buildings	417 62
Shops and carhouses	14,408 48
Stations, waiting rooms and miscellaneous buildings	15 54
Power plant equipment	10 00
Sub-station equipment	5,297 64
Shop equipment	65 50
Equipment.	
Cars	13,706 23
Electric equipment of cars	7,964 50
General Expenditures.	
Interest	8,946 87
	$76,678 10

NIPISSING CENTRAL

Comparative Statement of Earnings and Expenditures

	RECEIPTS	Per cent.	November 1912	Per cent.	November 1913
I.	Revenue from Transportation—		$ c.		$ c.
	Passenger Revenue	.....	6,533 30	.....	7,485 62
	Baggage Revenue	.....	6 95	.....	18 25
	Parlor, Chair and Special Car Revenue	.....	40 00	.....	45 00
	Milk Revenue	.....	.....	.....	44 45
	Freight Revenue	.....	.....	.....	.....
	Switching Revenue	.....	70 00	.....	140 77
	Totals	.....	6,650 25	.....	7,734 09
II.	Revenue from Operations other than Transportation—				
	Station and Car Privileges	.....	416 16	.....	137 36
	Car Service Demurrage	.....	.....	.....	15 00
	Rents of Tracks and Terminals	.....	.....	.....	.....
	Miscellaneous	.....	19 65	.....	.....
	Total	.....	435 81	.....	152 36
	Total Revenue	.....	7,086 06	.....	7,886 45
	EXPENDITURES				
I.	Maintenance of Way and Structures	3.4	242 32	9.7	766 38
II.	Maintenance of Equipment	6.	425 87	3.1	242 18
III.	Traffic Expenses	.5	36 60	.7	52 40
IV.	Transportation Expenses	35.9	2,546 60	38.8	3,062 01
V.	General Expenses	2.2	155 51	20.9	1,651 19
	Total Operating Expenses	48.	3,406 90	73.2	5,774 16
	Balance	.....	3,679 16	.....	2,112 29
	Other Income—				
	.....	.....	.....	.....	.....
	Deductions from Income—				
	Taxes	.....	.....	.....	.....
	Net Result	.....	3,679 16	.....	2,112 29

RAILWAY

by Months, November, 1912, to October, 1914.

Per Cent.	December, 1912	Per Cent.	December, 1913	Per cent.	January 1913	Per Cent.	January, 1914
	$ c.		$ c.		$ c.		$ c.
.....	6,486 90	.....	7,790 05	.....	5,508 05	.....	6,841 10
.....	14 40	.....	17 75	.....	8 75	.....	12 50
.....	20 00	.....	35 00	.....	40 00	.....	57 50
.....	17 45	.....	68 10	.....	.....	.....	4 80
.....	.....	.....	.....	.....	.....	.....	.....
.....	10 00	.....	230 54	.....	3 00	.....	439 01
.....	6,548 75	.....	8,141 44	.....	5,559 80	.....	7,354 91
.....	27 20	.....	13 60	.....	8 40	.....	11 99
.....	.....	.....	4 00	.....	.....	.....	6 00
.....	.....	.....	.....	.....	.....	.....	.....
.....	9.70	.....	.....	.....	.....	.....	.....
.....	36 90	.....	17 60	.....	8 40	.....	17 99
.....	6,585 65	.....	8,159 04	.....	5,568 20	.....	7,372 90
5.7	377 64	6.1	496 94	11.5	639 51	11.5	849 74
2.5	166 50	5.9	478 20	3.1	173 25	8.2	604 06
.4	30 00	.6	52 40	1.	58 00	.6	41 20
43.2	2,842 82	36.3	2,959 19	58.1	3,234 04	44.9	3,310 13
.2	11 96	20.2	1,654 21	6.9	381 43	23.3	1,720 08
52.	3,428 92	69.1	5,640 94	80.6	4,486 23	88.5	6,525 21
.....	3,156 73	.....	2,518 10	.....	1,081 97	.....	847 69
.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....
.....	3,156 73	.....	2,518 10	.....	1,081 97	.....	847 69

NIPISSING CENTRAL

Comparative Statement of Earnings and Expenditures

RECEIPTS.	Per cent.	February 1913	Per cent.	February, 1914	Per cent.	March 1913
		$ c.		$ c.		$ c.
I. Revenue from Transportation —						
Passenger Revenue	.....	5,043 55	.....	6,103 65	.....	6,005 50
Baggage Revenue	.....	5 25	.....	10 50	.....	4 65
Parlor, Chair and Special Car Revenue	.....	43 45	.....	65 00	.....	35 50
Milk Revenue	.....	.....	.....	1 20	.....	.....
Freight Revenue	.....	.....	.....	.....	.....	.....
Switching Revenue	.....	.....		385 61	.....	30 00
Totals	.....	5,092 25	.....	6,565 96	.....	6,075 65
II. Revenue from Operations other than Transportation —						
Station and Car Privileges	.....	11 15		14 96	.....	25 84
Car Service Demurrage	.....	.....	.....	.....	.....	.....
Rents of Tracks and Terminals	.....	.....		186 00	.....	.....
Miscellaneous	.....	.....	.....	.....	.....	.....
Total	.....	11 15		200 96	.....	25 84
Total Revenue	.....	5,103 40	.....	6,766 92	.....	6,101 49
EXPENDITURES.						
I. Maintenance of of Way and Structures	10.6	542 10	13.6	922 66	12.	734 93
II. Maintenance of Equipment	2.7	138 01	5.4	362 11	4.2	257 56
III. Traffic Expenses	1.2	60 30	.9	60 40	.8	46 45
IV. Transportation Expenses	52.3	2,670 41	45.4	3,072 95	42.7	2,606 62
V. General Expenses	5.8	296 46	24.5	1,658 82	4.6	277 63
Total Operating Expenses	72.6	3,707 28	89.8	6,076 94	64.3	3,923 19
Balance	.....	1,396 12	.....	689 98	.....	2,178 30
Other Income—						
.....	.....	.....	.....	.....	.....	.....
Deductions from Income—						
Taxes	.....	.....	.....	.....	.....	.....
Net Result	.....	1,396 12	.....	689 98	.....	2,178 30

RAILWAY—Continued

by months, November, 1912, to October, 1914.

Per cent.	March, 1914	Per cent.	April 1913	Per cent.	April, 1914	Per cent.	May 1913
	$ c.		$ c.		$ c.		$ c.
.....	7,422 95	.....	6,542 25	.....	8,032 85	.....	7,211 34
.....	12 50	.....	6 20	.....	16 40	.....	7 25
.....	15 00	.....	70 00	.....	30 00	.....	20 00
.....	39 20	.....	.....	.....	56 01	.....	.....
.....	583 99	.....	3 75	.....	523 05	.....	6 00
.....	8,073 64	.....	6,622 20	.....	8,658 31	.....	7,244 59
.....	35 36	.....	10 20	.....	161 59	.....	22 04
.....	4 00	.....	.....	.....	5 00	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....
.....	39 36	.....	10 20	.....	166 59	.....	22 04
.....	8,113 00	.....	6,632 40	.....	8,824 90	.....	7,266 63
16.8	1,359 01	8.5	561 76	12.8	1,129 78	6.5	472 29
6.8	552 15	4.1	271 06	5.7	499 47	7.5	542 42
.7	58 00	.8	52 40	.8	74 80	.7	51.05
40.8	3,312 96	37.3	2,476 75	36.5	3,219 48	42.6	3,095 82
24.6	1,993 93	4.	268 02	18.8	1,661 54	3.8	278 63
89.7	7,276 05	54.7	3,629 99	74.6	6,585 07	61.1	4,440 21
.....	836 95	.....	3,002 41	.....	2,239 83	.....	2,826 42
.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....
.....	836 95	.....	3,002 41	.....	2,239 83	.....	2,826 42

NIPISSING CENTRAL

Comparative Statement of Earnings and Expenditures

RECEIPTS	Per cent.	May 1914	Per cent.	June 1913	Per cent.	June 1914
		$ c.		$ c.		$ c.
I. Revenue from Transportation—						
Passenger Revenue	.....	8,781 89	.....	7,617 22	.....	9,213 75
Baggage Revenue	.....	32 55	.....	10 28	.....	45 00
Parlor, Chair and Special Car Revenue	.....	70 00	.....	45 00	.....	67 50
Milk Revenue	.....	61 12	.....	2 93	.....	11 56
Freight Revenue	.....	.....	.....	.....	.....	.....
Switching Revenue	.....	540 51	.....	24 16	.....	632 08
Total	.....	9,486 07	.....	7,699 59	.....	9,969 89
II. Revenue from Operations other than Transportation—						
Station and Car Privileges	.....	28 56	.....	4 76	.....	50 66
Car Service Demurrage	.....	5 00	.....	.....	.....	12 00
Rents of Tracks and Terminals	.....	.....	.....	.....	.....	.....
Miscellaneous	.....	.....	.....	.....	.....	.....
Total	.....	33 56	.....	4 76	.....	62 66
Total Revenue	.....	9,519 63	.....	7,704 35	.....	10,032 55
EXPENDITURES						
I. Maintenance of Way and Structure	10.5	999 77	15.6	1,193 81	10.5	1,052 20
II. Maintenance of Equipment	5.2	499 72	7.7	596 29	4.6	456 69
III. Traffic Expenses	.6	52 40	.9	71 85	.7	74 80
IV. Transportation Expenses	33.7	3,211 91	34.6	2,668 15	32.6	3,273 92
V. General and Miscellaneous	23.4	2,227 63	3.8	293 87	16.7	1,674 13
Total Operating Expenses	73.4	6,991 43	62.6	4,823 97	65.1	6,531 74
Balance	.....	2,528 20	.....	2,880 38	.....	3,500 81
Other Income—						
.....	.....	.....	.....	.....	.....	.....
Deductions from Income— Taxes	.....	.....	.....	.....	.....	.....
Net Result	.....	2,528 20	.....	2,880 38	.....	3,500 81

RAILWAY—Continued.

by Months, November 1912, to October 1914.

Per cent.	July 1913	Per cent.	July. 1914	Per cent.	August 1913	Per cent.	August. 1914
	$ c.		$ c.		$ c.		$ c.
.....	8,373 20	.....	10,802 62	.....	8,113 05	.....	9,834 70
.....	15 15	.....	69 00	.....	18 55	.....	56 90
.....	60 00	.....	32 50	.....	55 00	.....	15 00
.....	40 72	.....	9 93	.....	54 33	.....	2 70
.....	.....	.....	.....	.....	.....	.....	218 06
.....	16 32	.....	615 59	.....	57 80	.....	799 35
.....	8,505 39	.....	11,529 64	.....	8,298 73	.....	10,926 71
.....	1.70	.....	14 71	.....	13 26	.....	.....
.....	.....	.....	23 00	.....	.....	.....	23 00
.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	6 73	.....	2.57
.....	1.70	.....	37 71	.....	19 99	.....	25 57
.....	8,507 09	.....	11,567 35	.....	8,318 72	.....	10,952 28
8.4	716 77	11.9	1,377 04	6.7	553 11	10.8	1,187 08
3.4	285 72	3.9	451 84	5.1	427 64	4.	435 03
.6	54 30	.4	43 20	.7	58 00	1.	109 44
30.6	2,605 91	30.9	3,578 74	30.5	2,539 69	32.9	3,601 74
3.4	284 28	18.8	2,177 50	4.	334 86	15.9	1,738 95
46.4	3,946 98	65.9	7,628 32	47.	3,913 30	64.6	7,072 24
.....	4,560 11	.....	3,939 03	.....	4,405 42	.....	3,880 04
.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	15 75	.....	15 00
.....	4,560 11	.....	3,939 03	.....	4,389 67	.....	3,865 04

NIPISSING CENTRAL

Comparative Statement of Earnings and Expenditures

RECEIPTS	Per cent.	September 1913	Per cent.	September 1914	Per cent.	October 1913	Per cent
		$ c.				$ c.	
I. Revenue from Transportation—							
Passenger Revenue		8,397 24		8,335 80		7,787 12	
Baggage Revenue		15 10		43 90		16 75	
Parlor, Chair and Special Car Revenue		35 00		25 00		25 00	
Milk Revenue		50 49		3 40		34 02	
Freight Revenue				186 99			
Switching Revenue		92 25		866 12		114 33	
Total		8,590 08		9,461 21		7,987 22	
II. Revenue from Operations other than Transportation—							
Station and Car Privileges		16 32		46 24		41 65	
Car Service Demurrage				30 00			
Rents of Tracks and Terminals							
Miscellaneous							
Totals		16 32		76 24		41 65	
Total Revenue		8,606 40		9,537 45		8,028 87	
EXPENDITURES							
I. Maintenance of Way and Structures	8.7	752 22	13.	1,243 36	13.7	1,099 83	16.2
II. Maintenance of Equipment	4.	341 71	10.4	990 57	6.	481 40	6.1
III. Traffic Expenses	1.7	143 80	.5	48 80	.7	58 00	.6
IV. Transportation Expenses	30.8	2,654 62	41.2	3,932 92	38.	3,066 08	47.2
V. General and Miscellaneous	3.8	328 82	21.2	2,014 80	4.9	396 67	18.7
Total Operating Expenses	49.	4,221 17	86.3	8,230 45	63.3	5,101 98	88.8
Balance		4,385 23		1,307 00		2,926 89	
Other Income—							
Deductions from Income— Taxes						50 97	
Net Results		4,385 23		1,307 00		2,875 92	

RAILWAY—Continued.

by Months, November, 1912, to October, 1914.

October 1914	Per cent	1913 Total	Per cent	1914 Total	Increase	Decrease	Net increase	Net decrease
$ c.		$ c.		$ c.	$ c.	$ c.	$ c.	$ c.
8,316 75	....	83,618 72	....	98,961 73	15,343 01	.....	.....	.....
38 50	....	129 28	....	373 75	244 47	.....	.....	.....
10 00	....	498 95	....	467 50	.....	31 45	.....	.....
4 55	....	199 94	....	307 02	107 08	.....	.....	.....
609 15	....	.....	....	1,014 20	1,014 20	.....	.....	.....
785 25	....	427 61	....	6,541 87	6,114 26	.....	.....	.....
9,764 20	....	84,874 50	....	107,666 07	22,823 02	31 45	22,791 57	.....
.....	....	598 68	....	515 03	.....	83 65	.....	.....
56 00	....	.....	....	183 00	183 00	.....	.....	.....
.....	....	.....	....	186 00	186 00	.....	.....	.....
.....	....	36 08	....	2 57	.....	33 51	.....	.....
56 00	....	634 76	....	886 60	369 00	117 16	251 84	.....
9,820 20	....	85,509 26	....	108,552 67	23,192 02	148 61	23,043 41	.....
1,590 26	9.2	7,886 29	11.9	12,974 22	5,087 93	.....	.....	.....
597 89	4.8	4,107 43	5.7	6,169 91	2,062 48	.....	.....	.....
54 40	.8	720 75	.7	722 24	1 49	.....	.....	.....
4,640 82	38.6	33,007 51	37.9	41,176 77	8,169 26	.....	.....	.....
1,834 30	3.9	3,308 14	20.3	22,007 08	18,698 94	.....	.....	.....
8,717 67	57.3	49,030 12	76.5	83,050 22	34,020 10	.....	34,020 10	.....
1,102 53	....	36,479 14	....	25,502 45	.....	.....	.....	10,976 69
.....	....	.....	....	.....	.....	.....	.....	.....
.....	....	66 72	....	15 00	.....	51 72	.....	.....
1,102 53	....	36,412 42	....	25,487 45	.....	.....	.....	10,924 97

NIPISSING CENTRAL

Comparative Statement of Expenditures, November

No.	Maintenance of Way and Structures.	November, 1912	November, 1913	December, 1912	December 1913
		$ c.	$ c.	$ c.	$ c.
1	Superintendence of way and structures	30 00	30 00	30 00	30 00
2	Ballast				
3	Ties				
4	Rails		Cr. 2 50		
5	Rail fastenings and joints				
6	Special work				
7	Roadway and track labor	191 52	334 28	227 04	215 55
8	Paving				73 52
9	Miscellaneous roadw'y & track expenses	60	2 20	1 40	14 48
10	Cleaning and sanding track		2 28		95
11	Removal of snow, ice and sand		45 48	112 70	192 22
12	Bridges, trestles and culverts		162 49		96 00
13	Crossings, fences, cattle guards & signs	14 60		6 50	Cr. 219 01
14	Telephone and Telegraph Systems		4 15		84
15	Poles and fixtures		57 68		30 05
16	Transmission system				
17	Distribution system		130 32		22 15
18	Miscellaneous electric line expenses				
19	Buildings and structures	5 60			40 19
20	Other miscellaneous way expenses				
	Total	242 32	766 38	377 64	496 94
	Maintenance of Equipment.				
21	Superintendence of equipment	30 00	30 00	30 00	30 00
22	Power plant equipment	11 50	5 10		30 79
23	Substation equipment				
24	Passenger and combination cars	119 08	167 43	114 85	202 43
25	Freight, express and mail cars		1 75		
26	Service cars	34	4 90		4 20
27	Electric equipment of cars	40	32 15	20 89	206 62
28	Shop machinery and tools				
29	Shop expenses	264 55	85	76	4 16
30	Other miscellaneous eqipment expenses				
	Total	425 87	242 18	166 50	478 20
	Traffic Expenses.				
31	Superintendence and solicitation	30 00	30 00	30 00	30 00
32	Advertising		22 40		22 40
33	Miscellaneous traffic expenses	6 60			
	Totals	36 60	52 40	30 00	52 40
	Transportation Expenses.				
34	Superintendence of Transportation	30 00	30 00	30 00	30 00
	Group I—Power				
35	Substation employees	150 00	150 00	155 00	155 00
36	Substation supplies and expenses				
37	Power purchased	1,075 01	1,191 60	1,142 81	1,315 58
	Group II—Operation of cars.				
38	Passenger conductors, motormen and trainmen	1,018 74	1,159 45	1,057 61	1,233 86
39	Freight and express conductors and motormen		54 84		
40	Miscellaneous car-service employees	1 00	10 26	12 40	8 36
41	Miscellaneous car service expenses	47 45	321 86	25 30	46 71
42	Station employees				
43	Station expenses	.75		160 00	
44	Carhouse employees	223 65	144 00	252 30	165 50
45	Carhouse Expenses				3 80
46	Operation of Telephone and Telegraph Systems				
47	Other transportation expenses			7 40	.38
	Total	2,546 60	3,062 01	2,842 82	2,959 19

RAILWAY.

1st, 1912, to October 31st, 1914.

January, 1913	January, 1914	February, 1913	February, 1914	March, 1913	March, 1914	No.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
30 00	30 00	30 00	30 00	30 00	30 00	1
.....	.....	.....	.....	.....	.....	2
.....	.....	.....	3 15	.....	.....	3
.....	.....	.....	.....	.....	159 11	4
.....	.....	.....	.....	.....	.....	5
.....	.....	.....	29 10	.....	344 77	6
147 00	405 97	112 67	306 03	37 95	415 86	7
.....	.....	.....	27 78	.....	30 00	8
24 10	95	5 00	1 32	.....	.....	9
.....	.....	.....	.....	.....	.....	10
315 50	278 60	394 43	325 65	474 48	157 53	11
.....	96 00	.....	109 69	.....	108 50	12
5 10	.....	.....	.....	.....	.....	13
.....	1 40	.....	6 02	.....	.....	14
.....	2 25	.....	30	.....	12 52	15
.....	24 22	.....	20 70	.....	14 65	16
.....	9 60	.....	62 92	192 50	86 07	17
.....	.....	.....	.....	.....	.....	18
117 81	75	.....	.....	.....	.....	19
.....	.....	.....	.....	.....	.....	20
639 51	849 74	542 10	922 66	734 93	1,359 01	
30 00	34 50	30 00	30 00	30 00	30 00	21
.....	86 25	.....	5 15	.....	.....	22
.....	.....	.....	60 00	.....	126 87	23
92 77	433 38	85 26	167 56	152 91	169 89	24
.....	.....	.....	.....	.....	.....	25
.....	.....	.....	.....	.....	.....	26
25 81	47 35	21 12	20 53	74 28	95 47	27
.....	70	.....	.....	.....	3 60	28
20 57	1 88	1 63	78 87	37	126 32	29
4.10	.....	.....	.....	.....	.....	30
173 25	604 06	138 01	362 11	257 56	552 15	
30 00	30 00	30 00	30 00	30 00	30 00	31
28 00	11 20	24 30	30 40	11 20	28 00	32
.....	.....	6 00	.....	5 25	.....	33
58 00	41 20	60 30	60 40	46 45	58 00	
76 67	30 00	30 00	30 00	30 00	30 00	34
155 00	155 00	140 00	140 00	157 50	155 00	35
.....	.....	.....	.....	.....	.....	36
1,188 41	1,484 78	1,153 65	1,406 25	1,019 75	1,341 23	37
1,173 98	1,327 42	1,065 97	1,243 50	1,139 35	1,405 10	38
.....	9 45	.....	48 68	.....	23 23	39
12 00	11 78	10 80	10 26	10 26	11 40	40
409 59	18 87	5 60	31 01	18 11	57 51	41
.....	90 00	.....	.....	.....	45 00	42
3 59	11 53	35 64	.....	1 65	66 27	43
212 00	167 50	228 75	163 25	230 00	172 75	44
.....	3 80	.....	.....	.....	5 47	45
.....	.....	.....	.....	.....	.....	46
2 80	.....	.....	.....	.....	.....	47
3,234 04	3,310 13	2,670 41	3,072 95	2,606 62	3,312 96	

NIPISSING CENTRAL

Comparative Statement of Expenditures, November

No.	Maintenance of Way and Structures	April, 1913	April, 1914	May, 1913	May, 1914
		$ c.	$ c.	$ c.	$ c.
1	Superintendence of way and structures.	30 00	30 00	30 00	30 00
2	Ballast	.....	114 74	.....	.....
3	Ties	.....	.....	.....	.....
4	Rails	.....	.....	.....	.....
5	Rail fastenings and joints	.....	6 76	.....	.....
6	Special work	.....	.....	.....	.....
7	Roadway and track labor	259 95	623 63	278 03	474 28
8	Paving	.....	30 00	.....	Cr. 69 56
9	Miscellaneous roadw'y & track expenses	1 52	5 45	.....	.....
10	Cleaning and sanding track	2 09	37 05	3 99	32 30
11	Removal of snow, ice and sand	14 59	12 28	.....	31 64
12	Bridges, trestles and culverts	.....	108 50	.....	108 50
13	Crossings, fences, cattle guards & signs	29 99	.....	.....	.....
14	Telephone and telegraph systems	.....	.....	.....	20 60
15	Poles and fixtures	.....	7 75	.....	246 33
16	Transmission system	.....	5 62	.....	.....
17	Distribution System	223 62	148 00	160 27	102 40
18	Miscellaneous electric line expenses	.....	.....	.....	12 84
19	Buildings and structures	.....	.....	.....	10 44
20	Other miscellaneous way expenses	.....	.....	.....	.....
	Total	561 76	1,129 78	472 29	999 77
	Maintenance of Equipment.				
21	Superintendence of equipment	30 00	30 00	30 00	30 00
22	Power plant equipment	.....	.....	.....	.....
23	Substation equipment	.....	48 13	.....	13 84
24	Passenger and combination cars	211 54	231 11	466 39	190 65
25	Freight, express and mail cars	.....	.....	.....	.....
26	Service cars	.....	.....	.....	.....
27	Electric equipment of cars	29 34	146 37	56 50	147 57
28	Shop machinery and tools	.....	.....	Cr. 21 35	3 87
29	Shop expenses	18	43 86	10 88	113 79
30	Other miscellaneous equipment expenses	.....	.....	.....	.....
	Total	271 06	499 47	542 42	499 72
	Traffic Expenses.				
31	Superintendence and solicitation	30 00	30 00	30 00	30 00
32	Advertising	22 40	44 80	16 80	22 40
33	Miscellaneous traffic expenses	.....	.....	4 25	.....
	Total	52 40	74 80	51 05	52 40
	Transportation Expenses.				
34	Superintendence of transportation	30 00	30 00	30 00	30 00
	Group 1—Power.				
35	Substation employees	150 00	152 25	158 25	162 13
36	Substation supplies and expenses	.....	.....	.....	.....
37	Power purchased	931 12	1,280 02	981 28	1,056 60
	Group II—Operation of cars.				
38	Passenger conductors, motormen and trainmen	1,125 53	1,345 88	1,186 04	1,466 45
39	Freight and express conductors and motormen	.....	25 85	.....	11 65
40	Miscellaneous car-service employees	10 26	69 53	11 78	25 78
41	Miscellaneous car-service expenses	44 69	28 45	554 09	94 14
42	Station employees	.....	90 00	.....	90 00
43	Station expenses	16 65	.....	7 88	37 44
44	Carhouse employees	168 50	197 50	166 50	190 47
45	Carhouse expenses	.....	.....	.....	.....
46	Operation of telephone and telegraph systems	.....	.....	.....	.....
47	Other transportation expenses	.....	.....	.....	47 25
	Total	2,476 75	3,219 48	3,095 82	3,211 91

RAILWAY.

1st, 1912, to October 31st, 1914.

June, 1913	June, 1914	July, 1913	July, 1914	August, 1913	August, 1914	No.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
30 00	30 00	30 00	32 00	30 00	36 50	1
.....	.....	.....	.....	.....	7 03	2
.....	.....	.....	.....	.....	.....	3
.....	.....	.....	.....	.....	.....	4
6 82	12 80	.....	.....	.....	.....	5
4 59	.....	3 22	.....	95	.....	6
830 21	479 87	308 96	450 51	323 21	673 71	7
.....	.....	.....	.....	.....	.....	8
7 22	.....	12 87	6 59	.....	.....	9
.....	32 30	3 23	35 91	3 80	40 28	10
73 34	.....	1 42	.....	.....	.....	11
9.75	120 84	.....	140 84	.....	129 37	12
6 63	86 20	.....	.....	.....	8 35	13
.....	11 50	.....	5 90	.....	79 10	14
37 75	74 17	80 00	221 18	55 50	60 65	15
5 90	25 70	3 25	.....	.....	.....	16
150 19	153 07	221 69	477 67	137 36	152 09	17
19 00	.....	.....	.....	29	.....	18
12 41	25 75	52 13	6 44	.....	.....	19
.....	.....	.....	.....	2 00	.....	20
1,193 81	1,052 20	716 77	1,377 04	553 11	1,187 08	
34 90	30 00	30 00	32 00	30 00	32 00	21
.....	.....	.....	.....	115 50	.....	22
.....	.....	69 20	18 70	97 33	.....	23
395 59	236 54	157 10	178 97	148 02	328 76	24
.....	.....	.....	.....	.....	.....	25
16 00	85 00	.....	.....	.....	.....	26
143 96	36 78	28 06	205 96	34 83	42 62	27
.....	11 65	.....	.....	.....	.....	28
5 84	56 72	1 36	16 21	1 96	31 65	29
.....	.....	.....	.....	.....	.....	30
596 29	456 69	285 72	451 84	427 64	435 03	
30 00	30 00	30 00	32 00	30 00	32 00	31
33 60	44 80	24 30	11 20	28 00	77 44	32
8 25	.....	.....	.....	.....	.....	33
71 85	74 80	54 30	43 20	58 00	109 44	
43 47	30 00	30 00	32 00	30 00	32 00	34
151 25	160 00	157 00	199 25	156 00	201 29	35
2 49	.....	.....	.....	.....	.....	36
962 92	1,004 85	927 75	1,180 58	945 45	1,221 98	37
1,155 68	1,514 68	1,231 62	1,283 29	1,160 45	1,585 81	38
.....	4 75	.....	493 44	.....	218 00	39
.....	11 40	16 34	20 90	11 78	11 78	40
140 90	302 77	117 35	200 23	74 40	95 05	41
18 59	.....	.....	.....	.....	60 00	42
26 10	.....	Cr. 55 15	30	.....	4 33	43
166 75	241 50	181 00	168 75	161 61	171 50	44
.....	.....	.....	.....	.....	.....	45
.....	.....	.....	.....	.....	.....	46
.....	3 97	.....	.....	.....	.....	47
2,668 15	3,273 92	2,605 91	3,578 74	2,539 69	3,601 74	

NIPISSING CENTRAL

Comparative Statement of Expenditures, November

No.	Maintenance of Way and Structures	September, 1913	September, 1914	October, 1913	October, 1914
		$ c.	$ c.	$ c.	$ c.
1	Superintendence of way and structures.	41 40	32 00	30 00	37 00
2	Ballast	.....	.....	.....	25 05
3	Ties	.....	1 92	.....	.....
4	Rails	.....	.....	.....	.....
5	Rail fastenings and joints	20 46	.....	.....	.....
6	Special work	.....	.....	.....	4 07
7	Roadway and track labor	604 40	699 98	725 88	903 85
8	Paving	.....	.....	.....	.....
9	Miscellaneous roadw'y & track expenses	7 53	.....	1 90	.....
10	Cleaning and sanding track	3 99	102 98	6 65	34 77
11	Removal of snow, ice and sand	.....	.....	.....	.....
12	Bridges, trestles and culverts	.....	108 50	85 82	12 50
13	Crossings, fences, cattle guards & signs	5 30	.....	153 71	.....
14	Telephone and telegraph systems	.....	22 50	.....	49 72
15	Poles and fixtures	.....	73 07	43 10	91 25
16	Transmission system	17 84	5 70	3 50	44 90
17	Distribution System	51 30	156 60	49 27	169 35
18	Miscellaneous electric line expenses	.....	.....	.....	.....
19	Buildings and structures	.....	40 11	.....	217 80
20	Other miscellaneous way expenses.	.....	.....	.....	.....
	Total	752 22	1,243 36	1,099 83	1,590 26
	Maintenance of Equipment.				
21	Superintendence of equipment	30 00	32 00	30 00	32 00
22	Power plant equipment	10 00	.....	42 69	13 08
23	Substation equipment	31 24	.....	91 49	1 32
24	Passenger and combination cars	153 85	260 72	206 71	203 44
25	Freight, express and mail cars	32 00	274 85	82 80	.....
21	Service cars	.....	.....	.....	.....
27	Electric equipment of cars	84 33	402 56	26 49	320 00
28	Shop machinery and tools	.....	.....	.....	1 05
29	Shop expenses	29	20 44	1 22	27 00
30	Other miscellaneous equipment expenses	.....	.....	.....	.....
	Total	341 71	990 57	481 40	597 89
	Traffic Expenses.				
31	Superintendence and solicitation	30 00	32 00	30 00	32 00
32	Advertising	113 80	16 80	28 00	22 40
33	Miscellaneous traffic expenses	.....	.....	.....	.....
	Total	143 80	48 80	58 00	54 40
	Transportation Expenses.				
34	Superintendence of transportation.	30 00	32 00	30 00	32 00
	Group I—Power.				
35	Substation employees	151 25	160 00	155 00	175 00
36	Substation supplies and expenses	.....	.....	.....	.....
37	Power purchased	1,016 10	1,276 20	1,177 50	1,341 45
	Group II—Operation of cars.				
38	Passenger conductors, motormen and trainmen	1,156 85	1,597 46	1,184 62	1,616 16
39	Freight and express conductors and motormen	9.80	289 60	47 80	279 85
40	Miscellaneous car-service employees	11 40	10 64	11 40	5 32
41	Miscellaneous car-service expenses	36 50	59 51	85 79	491 41
42	Station employees	45 00	248 00	180 00	148 00
53	Station expenses	8 47	21 19	24 47	122 68
44	Carhouse employees	189 25	222 00	169 50	217 50
45	Carhouse expenses	.....	15 94	.....	211 08
46	Operation of telephone and telegraph systems	.....	.....	.....	37
47	Other transportation expenses	.....	38	.....	.....
	Total	2,654 62	3,932 92	3,066 08	4,640 82

RAILWAY.

1st, 1912, to October 31st, 1914.

Total. 1913	Total, 1914	Increase.	Decrease.	Net Increase.	Net Decrease.	No.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
371 40	377 50	6 10	.....	.....	.....	1
.....	146 82	146 82	.....	.....	.....	2
.....	5 07	5 07	.....	.....	.....	3
.....	156 61	156 61	.....	.....	.....	4
27 28	19 56	.....	7 72	.....	.....	5
8 76	377 94	369 18	.....	.....	.....	6
4,046 82	5,983 52	1,936 70	.....	.....	.....	7
.....	91 74	91 74	.....	.....	.....	8
62 14	30 99	.....	31 15	.....	.....	9
23 75	318 82	295 07	.....	.....	.....	10
1,386 46	1,043 40	.....	343 06	.....	.....	11
95 57	1,301 73	1,206 16	.....	.....	.....	12
221 83	Cr. 124 46	.....	346 29	.....	.....	13
.....	201 73	201 73	.....	.....	.....	14
216 35	877 20	660 85	.....	.....	.....	15
30 49	141 49	111 00	.....	.....	.....	16
1,186 20	1,670 24	484 04	.....	.....	.....	17
19 29	12 84	.....	6 45	.....	.....	18
187 95	341 48	153 53	.....	.....	.....	19
2 00	.....	.....	2 00	.....	.....	20
7,886 29	12,974 22	5,824 60	736 67	5,087 93	.....	
364 90	372 50	7 60	.....	.....	.....	21
179 69	140 37	.....	39 32	.....	.....	22
289 26	268 86	.....	20 40	.....	.....	23
2,304 07	2,770 88	466 81	.....	.....	.....	24
114 80	276 60	161 80	.....	.....	.....	25
16 34	94 10	77 76	.....	.....	.....	26
546 01	1,703 98	1,157 97	.....	.....	.....	27
Cr. 21 35	20 87	42 22	.....	.....	.....	28
309 61	521 75	212 14	.....	.....	.....	29
4 10	.....	.....	4 10	.....	.....	30
4,107 43	6,169 91	2,126 30	63 82	2,062 48	.....	
360 00	368 00	8 00	.....	.....	.....	31
330 40	354 24	23 84	.....	.....	.....	32
30 35	.....	.....	30 35	.....	.....	33
720 75	722 24	31 84	30 35	1 49	.....	
420 14	368 00	.....	52 14	.....	.....	34
1,836 25	1,964 92	128 67	.....	.....	.....	35
2 49	.....	.....	2 49	.....	.....	36
12,521 75	15,101 12	2,579 37	.....	.....	.....	37
13,656 44	16,779 06	3,122 62	.....	.....	.....	38
57 60	1,459 34	1,401 74	.....	.....	.....	39
119 42	207 41	87 99	.....	.....	.....	40
1,559 77	1,747 52	187 75	.....	.....	.....	41
243 59	771 00	527 41	.....	.....	.....	42
230 05	263 74	33 69	.....	.....	.....	43
2,349 81	2,222 22	.....	127 59	.....	.....	44
.....	240 00	240 09	.....	.....	.....	45
.....	37	37	.....	.....	.....	46
10 20	51 98	41 78	.....	.....	.....	47
33,007 51	41,176 77	8,351 48	182 22	8,169 26	.....	

NIPISSING CENTRAL

Comparative Statement of Expenditures—November 1st, 1912,

No.	General Expenses.	1912 November,	1913 November.	1912 December,	1913 December.
		$ c.	$ c.	$ c.	$ c.
48	Salaries and expenses of general officers	30 00	30 00	30 00	30 00
49	Salaries and expenses of general office clerks	100 00	150 00	102 90	150 00
50	General office supplies and expenses...	14 50	8 00	27 45	8 54
51	Law expenses	.....	.....	Cr. 210 00	.....
52	Miscellaneous general expenses	2 35	8 75	1 60	75
	Undistributed Accounts.				
53	Injuries and damages	.....	.....	.....	.....
54	Insurance	.....	106 33	51 51	106 33
55	Stationery and printing	8 66	21 00	8 50	38 59
56	Store expenses	.....	.....	.....	.....
57	Rents of Tracks and Terminals	.....	1,327 11	.....	1,320 00
58	Rent of Equipment	.....	.....	.....	.....
	Totals	155 51	1,651 19	11 96	1,654 21

MISCELLANEOUS

November 1st, 1912

No.	——	1912 November,	1913 November.	1912 December,	1913 December.
59	Passenger car, hours	1,720	1,860	1,775	1,908
60	Passenger car, miles	17,205	18,607	17,750	19,080
61	Total passengers carried	87,793	108,443	87,595	111,853
62	Average daily receipts	$221.67	$256.96	$212.41	$261.81
63	Average receipts per car hour	3.86	4.08¾	3.71	4.25
64	Average receipts per car mile	.38¾	.40¾	.37	.42½
65	Earnings per passenger	.07½	.06¾	.07½	.06¾
66	Freight car hours	.....	.....	.....	.....
67	Freight car miles—loaded	.....	.....	.....	.....
68	Freight car miles—empty	.....	.....	.....	.....

RAILWAY—Continued

to October 31st, 1914—Continued.

1913 January,	1914 January.	1913 February,	1914 February.	1913 March,	1914 March.	No.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
30 00	30 00	30 00	30 00	30 00	30 00	48
145 00	155 00	145 00	155 00	145 00	155 00	49
15 87	61 00	34 00	8 34	8 00	252 05	50
Cr. 508 55	.....	.....	.....	.....	.....	51
1 50	5 10	2 45	17 65	23 25	1 35	52
600 00	.....	.....	.....	9 00	.....	53
60 51	115 33	51 51	106 33	51 51	216 41	54
37 10	33 65	33 50	21 50	10 87	19 12	55
.....	.....	.....	.....	.....	.....	56
.....	1,320 00	.....	1,320 00	.....	1,320 00	57
.....	.....	.....	.....	.....	.....	58
381 43	1,720 08	296 46	1,658 82	277 63	1,993 93	

STATISTICS

to October 31st, 1914.

1913 January,	1914 January.	1913 February,	1914 February.	1913 March,	1914 March.	No.
1,792	1,972	1,617	1,742	1,783	1,968	59
17,925	20,499	16,175	18,189	17,830	20,668	60
77,597	100,883	71,051	92,616	80,841	109,576	61
$179.36	$237.35	$181.97½	$234.36	$196.77¾	$259.80	62
3.10	3.72¾	3.14¾	3.53½	3.41¾	4.08¾	63
.31	.35¾	.31½	.33¾	.34	.38¾	64
.07	.06¾	.07	.06½	.07½	.06¾	65
.....	.....	.....	.....	.....	.....	66
.....	.....	.....	.....	.....	.....	67
.....	.....	.....	.....	.....	.....	68

NIPISSING CENTRAL

Comparative Statement of Expenditure—November 1st, 1912

No.	General Expenses.	1913 April,	1914 April.	1913 May,	1914 May.
		$ c.	$ c.	$ c.	$ c.
48	Salaries and expenses of general officers	30 00	30 00	30 00	30 00
49	Salaries and expenses of general office clerks	145 00	155 00	145 00	155 00
50	General office supplies and expenses.	8 00	14 09	4 00	3 30
51	Law expenses	.....	.....	.....	.....
52	Miscellaneous general expenses	70	1 15	3 30	3 25
	Undistributed Accounts.				
53	Injuries and damages	.....	.....	.....	.....
54	Insurance	84 32	107 58	84 33	257 58
55	Stationery and printing	.....	33 72	12 00	8 50
56	Store expenses	.....	.....	.....	.....
57	Rents of tracks and terminals	.....	1,320 00	.....	1,320 00
58	Rent of equipment	.....	.....	.....	450 00
	Totals	268 02	1,661 54	278 63	2,227 63

MISCELLANEOUS

November 1st, 1912,

No.	General Expenses.	1913 April,	1914 April.	1913 May,	1914 May.
59	Passenger car hours	1,728	1,907	1,821	2,062
60	Passenger car miles	17,283	20,022	18,215	21,658
61	Total passengers carried	91,608	115,348	100,969	124,637
62	Average daily receipts	$221.65	$287.10	$233.88	$305.28
63	Average receipts per car hour	3.84¾	4.51½	3.98	4.58¾
64	Average receipts per car mile	.38½	.43	.39¾	.43¾
65	Earnings per passenger	.07	.06¾	.07	.07
66	Freight car hours	.....	.....	.....	.....
67	Freight car miles—loaded	.....	.....	.....	.....
68	Freight car miles—empty	.....	.....	.....	.....

RAILWAY—Continued

to October 31st, 1914.

1913 June.	1914 June.	1913 July.	1914 July.	1913 August.	1914 August.	No.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
30 00	30 00	30 00	34 50	30 00	32 00	48
145 00	155 00	150 00	155 00	150 00	155 00	49
9 64	3 00	4 00	3 35	4 00	3 00	50
1 00	.....	.....	.....	.....	.....	51
1 30	26 25	2 45	2 05	4 95	.....	52
.....	8 00	.....	72 75	.....	.....	53
84 33	107 58	84 33	137 33	123 01	220 95	54
22 60	24 30	13 50	43 47	22 90	8 00	55
.....	.....	.....	.....	.....	.....	56
.....	1,320 00	.....	1,320 00	.....	1,320 00	57
.....	.....	.....	409 05	.....	.....	58
293 87	1,674 13	284 28	2,177 50	334 86	1,738 95	

STATISTICS

to October 31st, 1914.

1913 June.	1914 June.	1913 July.	1914 July.	1913 August.	1914 August.	No.
1,837.	1,983	1,835.	2,295	1,870.	2,419	59
18,375.	20,820	18,350.	24,102	18,705.	25,756	60
104,734.	129,675	112,432.	145,412	113,028.	135,451	61
$255.79	$333.37	$273.53	$351.70	$265.27	$351.03	62
4.17¾	5.00½	4.62	4.75	4.39½	4.07¾	63
.41½	.47½	.46	.45½	.43¾	.38¼	64
.07¼	.07	.07½	.07½	.07¼	.07¼	65
.....	.....	.....	.....	.....	38	66
.....	.....	.....	.....	.....	118	67
.....	.....	.....	.....	.....	64	68

NIPISSING CENTRAL

Comparative Statement of Expenditures—November 1st, 1912,

No.	General Expenses.	1913 September.	1914 September.	1913 October.	1914 October.
		$ c.	$ c.	$ c.	$ c.
48	Salaries and expenses of general officers	30 00	32 00	30 00	32 00
49	Salaries and expenses of general office clerks	150 00	155 00	150 00	155 00
50	General office supplies and expenses	4 00	3 30	8 00	7 75
51	Law expenses	.....	.....	.....	.....
52	Miscellaneous general expenses	13 00	16 15	2 20	55
	Undistributed Accounts.				
53	Injuries and damages	.....	38 50	50 00	.....
54	Insurance	106 38	167 89	106 33	136 86
55	Stationery and printing	25 44	6 12	42 87	44 22
56	Store expenses	.....	.....	7 27	.....
57	Rents of tracks and terminals	.....	1,595 84	.....	1,457 92
58	Rent of equipment	.....	.....	.....	.....
	Totals	328 82	2,014 80	396 67	1,834 30

MISCELLANEOUS

November 1st, 1912,

No.	General Expenses.	1913 September.	1914 September.	1913 October.	1914 October.
59	Passenger car hours	1,788	2,347	1,929	2,413
60	Passenger car miles	17,880	24,813	19,295	24,913
61	Total passengers carried	113,835	118,812	114,755	123,199
62	Average daily receipts	$283.44	$317.76	$255.31	$316.07
63	Average receipts per car hour	4,75¾	3.57	4.10	3.45½
64	Average receipts per car mile	.47½	.33¾	.41	.33½
65	Earnings per passenger	07¼	.07	06¾	.06¾
66	Freight car hours	.....	31	.....	51
67	Freight car miles—loaded	.....	101	.....	232
68	Freight car miles—empty	.....	60	.....	182

RAILWAY—Continued

to October 31st, 1914.

1913 Total.	1914 Total.	Increase.	Decrease.	Net Increase.	Net Decrease.	No.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
360 00	370 50	10 50	.....	.....	.....	48
1,672 90	1,850 00	177 10	.....	.....	.....	49
141 46	375 72	234 26	.....	.....	.....	50
Cr. 717 55	.....	717 55	.....	.....	.....	51
59 05	83 00	23 95	.....	.....	.....	52
659 00	119 25	.....	539 75	.....	.....	53
888 07	1,786 50	898 43	.....	.....	.....	54
237 94	302 19	64 25	.....	.....	.....	55
7 27	.....	.....	7 27	.....	.....	56
.....	16,260 87	16,260 87	.....	.....	.....	57
.....	859 05	859 05	.....	.....	.....	58
3,308 14	22,007 08	19,245 96	547 02	18,698 94	.....	

STATISTICS

to October 31st, 1914.

1913 Total.	1914 Total.	Increase.	Decrease.	Net Increase.	Net Decrease.	No.
21,495	24,876	3,381	.....	.....	.....	59
214,988	259,127	44,139	.....	.....	.....	60
1,156,238	1,415,905	259,667	.....	.....	.....	61
$232.53	$294.98	$62.45	.....	.....	.....	62
3.95	4.33	.38	.....	.....	.....	63
.39½	.41¼	.02	.....	.....	.....	64
.07¼	.07	.....	.00¼	.....	.....	65
.....	120	120	.....	.....	.....	66
.....	451	451	.....	.....	.....	67
.....	306	306	.....	.....	.....	68

Main Street, Elk Lake, showing Post-office and King George Hotel. Town is lighted by electricity.

Government Bridge at Elk Lake, superseding old pontoon bridge of early days.

NIPISSING CENTRAL RAILWAY CO.

Statement of Wages paid Employees for Year Ended Oct. 31st, 1914.

McDonald, K.	Superintendent	$1,840 00	
Crouch, R. J.	Cashier	1,250 00	
Stewart, W. F.	Land Agent	900 00	
Miller, N. A.	Stenographer	600 00	
Stewart, J.	Janitor	28 00	
Duval, C.	"	32 15	
Lemieux, T.	Motorman	105 49	
Montgomery, A.	Conductor	614 13	
Murray, D. R.	"	878 16	
McAughey, D.	"	1,056 88	
Anderson, G.	"	1,083 09	
Normandy, B.	"	669 37	
McDonald, A. A.	"	982 12	
Curry, F. W.	"	955 60	
Henson, W.	"	346 37	
Quinn, P.	Motorman	1,149 87	
Finlay, F.	"	1,096 17	
Holden, E.	"	986 60	
Carmichael, W.	"	98 17	
Morrell, J. A.	"	1,016 94	
Lyons, H. C.	"	1,012 85	
Parks, W.	"	976 44	
Gangnon, L.	"	74 50	
Faught, T. J.	"	210 62	
McIsaac, N.	Conductor	712 52	
Richardson, R.	"	709 71	
Kilgour, A. H.	"	166 25	
O'Brien, H.	Sanitary Work	3 00	
McMillan, H.	Conductor	180 87	
Presley, W.	"	442 29	
McRae, A. J.	Motorman	661 98	
Fisher, J.	"	280 37	
Garrison, T.	"	512 24	
Moore, N.	"	339 62	
Noble, J.	Conductor	320 36	
Brooks, W.	Motorman	96 37	
Lemieux, P.	"	158 37	
Hoppins, G.	"	43 62	
Stewart, L.	Picketman	4 50	
Draper, J.	Switchman	81 45	
			$22,677 04

Maintenance and Construction.

Forrest, D.	B. Foreman	$1,080 00	
Andrews, H.	L. Foreman	1,200 00	
	All Others	10,062 13	
			12,342 13
Section No. 15½	Foreman	$209 35	
	Laborers	446 50	
			655 85
Section No. 16½	Foreman	$968 55	
	Laborers	3,182 12	
			4,150 67
Extra Gang, No. 20	Foreman	$422 02	
	Laborers	2,805 40	
			3,227 42

Kerr Lake Station.

Carter, Wm.	Clerk	$176 00	
			176 00
	Total Payroll for Year		$43,229 11

NIPISSING CENTRAL RAILWAY

Expenditure for Fiscal Year, 1914.

ALEXANDER & CABLE LITHOGRAPHING CO., LTD., TORONTO, ONT.

Voucher.			
658—Embossing and numbering passes	$1 50		
926— " " "	1 50		
			$3 00

HUGH ALLAN, ENGINEERING DEPT., NORTH BAY, ONT.

655—Expenses, October 30th to December 3rd, 1913	$25 00		
684— " December, 1913	20 00		
723— " December 31st, 1913, to January 28th, 1914	20 00		
763— " January 25th, 1914, to March 10th, 1914	30 00		
			$95 00

ACTON BURROWS, LTD., TORONTO, ONT.

808—Enamelled signs	$75 60		
928— " "	29 40		
			$105 00

MUNICIPAL CORPORATION OF BUCKE.

853—Taxes in arrears on lots, North Cobalt	$969 59		
925—Payment of lots purchased at tax sale, Sept. 23rd, 1914	66 60		
			$1,036 19

BEAMISH & SMITH, NORTH BAY, ONT.

643—Uniforms	$357 00		
			$357 00

BARBER, ELLIS, LTD., TORONTO, ONT.

666—Envelopes	$3 59		
			$3 59

BURROWS & PARMELEE, NORTH BAY, ONT.

693—Repairs and material, New Liskeard waiting room	$0 75		
			$0 75

JOHN BOURKE & CO., NORTH BAY, ONT.

641—Fire brick	$22 80		
668—Fire brick and clay	7 27		
			$30 07

COBALT DAILY NUGGET, LTD., COBALT, ONT.

639—Subscription to "Daily Nugget" from Nov. 14th, 1913, to Nov. 14th, 1914	$6 00		
698—Time tables	8 00		
			$14 00

COLEMAN FARE BOX CO., TOTTENHAM, ONT.

645—Repairs to portable fare boxes	$6 25		
752—Portable fare boxes	31 50		
			$37 75

CANADIAN GENERAL ELECTRIC CO., TORONTO, ONT.

659—Tape, electrical material	$68 64
670—Motor brushes, porcelain tubes	21 10
695—Steel box	7 15
731—Insulators, wire	12 43
742—Porcelain tubes, auls	99 38
765—Insulating compound	1 05

CANADIAN GENERAL ELECTRIC CO.—*Continued.*

750—Certificate No. 1, switching equipment for sub-stations at Cobalt and North Cobalt	$2,796 00	
813—Certificate No. 2, switching equipment for sub-stations at Cobalt and North Cobalt	932 00	
813—Iron grids, track drill	310 80	
817—Carbon brushes, cable	19 89	
794—Panel and fittings	35 00	
861—Set gear, tape	40 75	
885—End bells with compound, brass axle, lining drills	100 15	
876—Brushes	81 75	
923—Contract completed, switching equipment, Cobalt sub-station	932 00	
929—Brush holder yokes, sheet leatheroid, controller	225 13	
943—Electrical material	252 90	
		$5,936 12

CANADIAN WESTINGHOUSE CO., HAMILTON, ONT.

702—Air brake material	$3 32	
767—Gauge lamps, sockets, springs	18 15	
821—Automatic brake equipment	830 00	
878—Equipment No. 306, split frame motors	7,001 50	
936—Ten K. W. type "S" transformers, class 200, with charger irons fuse blocks and oil	193 50	
		$8,046 47

CAIN COAL CO., PORT COBALT, ONT.

713—Lumber	$15 68	
		$15 68

R. J. CROUCH, NORTH COBALT, ONT.

679—Commission on advertising, November, 1913	$24 24	
686— " " December, 1913	2 40	
727— " " January, 1914	2 11	
718— " " February, 1914	2 64	
791— " " March, 1914	6 24	
770— " " April, 1914	28 51	
809— " " May, 1914	5 04	
820— " " June, 1914	8 94	
867— " " July, 1914	2 59	
941— " " September, 1914	8 16	
		$90 87

COCHRANE HARDWARE CO., LTD., NORTH BAY, ONT.

661—Fire brick and clay	$11 90	
700—Snowshoes and wick	6 37	
768—Stove bolts	30	
825—Paint	52 73	
826—Blocks, rope	16 69	
887—Files	11 22	
874— "	7 12	
934—Scrubbing brushes	1 50	
		$107 83

CANADIAN FAIRBANKS CO., LTD., TORONTO, ONT.

729—Turntable	$91 50	
830—Stock and dies	11 65	
		$103 15

CANADIAN STEEL FOUNDRIES, LTD., MONTREAL, QUE.

672—Turnouts	$1,200 00	
		$1,200 00

S. J. Cherry, North Bay, Ont.

725—Estimates 2 and 3 heating equipment for barns, North Cobalt	$1,409 63	
811—Estimates 3 (final) heating equipment for barns, North Cobalt	808 93	
		$2,218 56

Canadian Inspection and Testing Lab., Montreal, Que.

651—Shop inspection steel work for car barns	$13 92	
		$13 92

Canadian Tungsten Lamp Co., Ltd., Hamilton, Ont.

657—16 c.p.-110 volt lamps	$14 70	
		$14 70

Canadian Explosives, Ltd., Cobalt, Ont.

828—White jacket fuse	$1 00	
819—Dynamite fuse and detonators	38 66	
		$39 66

Canadian Consolidated Rubber Co., Ltd., Toronto, Ont.

823—Electricians' gloves	$12 84	
832—Red Star sheeting packing	2 19	
		$15 03

Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.

824—Switch material and stands	$850 50	
		$850 50

Canada Metal Co., Ltd., Toronto, Ont.

945—String solder	$12 25	
		$12 25

Central Electrical Co., Syracuse, N.Y.

730—New century field tester No. 1577	$76 00	
		$76 00

Township of Coleman, P. J. Hart, Treasurer, Cobalt, Ont.

738—Crushed rock supplied for use on Ferguson Ave., Haileybury, Ont.	$536 93	
		$536 93

Dawson & Co., Ltd., Montreal, Que.

663—Frogs, armatures, spindles, globes, clutches	$84 36	
674—Armature coils, trolley wheels, bushings, locknuts	150 40	
697—Trolley wheels	115 00	
733—Trolley spindles	9 80	
769—Trolley spindles	25 00	
754—Condulet, elbows, trolley bushings, globes	55 75	
772—Liberty trolley harps	26 40	
796—Clutches, trolley bases	124 44	
834—Lockwashers	90	
947—Lockwashers	2 25	
956—Leatheroid, empire cloth	18 18	
		$612 48

ELECTRIC RAILWAY JOURNAL, NEW YORK, N.Y.

699—Subscription for "Electric Railway Journal" ending December, 1914	$4 50	
888—Subscription for "Electric Railway Journal" ending August, 1915	4 50	
		$9 00

EMPLOYERS' LIABILITY ASSURANCE CORPORATION, LTD., TORONTO, ONT.

705—Renewal premiums, Fidelity bonds (two), F-25576-79	$9 00	
930—Renewal premiums, Fidelity bonds (two), F-25576-79	3 90	
		$12 90

C. L. FERGUSON, PAYMASTER, NORTH BAY, ONT.

653—Payrolls for month of November, 1913	$3,130 31	
664— " " December, 1913	2,794 99	
711— " " January, 1914	3,015 08	
716— " " February, 1914	3,031 66	
785— " " March, 1914	2,985 26	
762—Amounts disbursed, board and livery service, W. R. Keys, engineering party	386 40	
766—Payrolls for months of April, 1914	2,968 47	
805— " " May, 1914	4,186 47	
816— " " June, 1914	4,210 77	
864—Amount disbursed for express charges	15 65	
855—Payrolls for month of July, 1914	4,443 13	
872— " " August, 1914	4,611 62	
927— " " September, 1914	4,020 02	
924— " " October, 1914	3,831 33	
		$43,631 16

FROTHINGHAM & WORKMAN, LIMITED, MONTREAL, QUE.

704—Swedes iron, 4 x ¾	$5 07	
720—Spring steel, Swedish iron	16 72	
827—Swedes iron, 2 x 1	3 40	
		$25 19

GRAND & TOY, LTD., TORONTO, ONT.

707—Cash and ledger combined	$2 00	
801—200 pp. book	1 25	
		$3 25

GENERAL SUPPLY CO. OF CANADA, LTD., OTTAWA, ONT.

838—Unions, elbows, tees, etc.	$52 98	
		$52 98

B. GREENING WIRE CO., LTD., HAMILTON, ONT.

836—Galvanized strand, 5-16 in.	$183 65	
		$183 65

ROBERT W. HUNT & CO., LTD., MONTREAL, QUE.

873—Trolley wire inspection and inspection aluminum cable	$38 28	
		$38 28

CORPORATION OF TOWN OF HAILEYBURY, ONT.

870—Taxes for year 1914	$15 00	
		$15 00

HAMILTON STAMP & STENCIL WORKS, LTD., HAMILTON, ONT.

706—Dater "Nipissing Central Railway" North, etc.	$1 34	
931—Dater "Nipissing Central Railway," Kerr Lake, Ont.	1 34	
		$2 68

GEO. H. HEES, SON & CO., LTD., TORONTO, ONT.

771—Shades	$11 47	
		$11 47

THE HAILEYBURIAN, HAILEYBURY, ONT.

896—Advertisement *re* townsite, North Cobalt	$2 00	
		$2 00

HERRON'S LIVERY, NEW LISKEARD, ONT.

798—Team to North Temiskaming	$5 00	
		$5 00

HAILEYBURY OLD BOYS' REUNION, HAILEYBURY, ONT.

818—Donation to Old Boys' reunion	$25 00	
		$25 00

HYDRO-ELECTRIC POWER COMMISSION, TORONTO, ONT.

958—16 c.p. 110 v. Pear carbon lamps	$10 50	
		$10 50

IMPERIAL OIL CO., LTD., TORONTO, ONT.

665—Engine oil	$13 08	
676— " "	13 64	
701—Curve grease	10 89	
722—Engine oil	12 77	
829— " "	12 36	
800— " "	11 96	
840—Gear grease	39 19	
880—Engine oil	12 90	
933— " "	12 90	
949— " "	53 76	
		$193 45

JACKSON PRESS, KINGSTON, ONT.

667—Cash book, form 2602	$21 00	
735—Correction forms, Interchange Record, time slips	31 65	
708—Order blanks, form 2503, letterheads	10 25	
724—Inspectors' reports, forms 2500-2504	11 25	
773—Scholars' certificates	4 00	
773—Letter paper	11 50	
831—Interchange records, backing paper	7 25	
842—Letter paper and letterheads	19 30	
863—Conductors' telegraph report of accidents, form 2505, etc.	14 25	
890—Letter paper	2 25	
960—Cash book, form 2602	4 75	
974—Letter paper, forms	25 15	
		$162 60

A. H. E. KEEFER, ENGINEER'S DEPT., TORONTO, ONT.

696—Rig hire and meals	$2 75	
		$2 75

KNECHTEL FURNITURE CO., LTD., HANOVER, ONT.

775—Desk, chairs	$64 19	
		$64 19

GEORGE KING, NEW LISKEARD, ONT.

932—Drilling well at North Cobalt (final estimate)	$354 85	
		$354 85

G. C. KUHLMAN CAR CO., CLEVELAND, OHIO.

882—Rattan	$157 50	
		$157 50

KERRY & CHACE, LTD., TORONTO, ONT.

761—Services rendered *re* electrification of and extension N. C. Ry., from May 1st to Dec. 31st, 1913	$955 10	
862—Services rendered *re* electrification of and extension N. C. Ry from Dec. 1st, 1913, to June 30th, 1914	327 04	
951—Services rendered *re* electrification of and extension N. C. Ry from July 1st to Sept. 30th, 1914	102 40	
		$1,384 54

ROBERT LILLIE, NORTH COBALT, ONT.

756—Dynamite, detonators, fuse	$2 70	
802—Knives, hammer handles, rope	6 41	
678—Hardware as per statements attached to voucher	10 31	
		$19 42

W. H. LEWIS, HAILEYBURY, ONT.

709—Search, etc., O'Hara to Nipissing Central Ry., per W. F. Stewart	$3 34	
		$3 34

LONDON ROLLING MILL CO., LTD., LONDON, ONT.

938—Iron	$12 22	
		$12 22

JOHN MILLEN & SON, LTD., MONTREAL, QUE.

715—Keystone signs	$273 00	
758—Parts for retriever, trolley poles	138 81	
776—Keystone vacuum sanders	10 72	
875—Sockets, linen tape, headlight, equipment	48 28	
889—Meter bushings	90 00	
884—Headlights, retriever parts	39 81	
953—Headlight repairs	29 36	
940—Headlight carbons, crucible steel armature bending wire	44 16	
		$674 14

W. R. MAHER, ENGINEER'S DEPT., NORTH BAY, ONT.

694—Expenses, January and February, 1914	$19 60	
		$19 60

JAMES MONROE, NORTH COBALT, ONT.

691—Digging well at new car barns, North Cobalt	$123 50	
		$123 50

GEO. O. MAITLAND, NORTH BAY, ONT.

737—Roofing car barns, North Cobalt (final certificate)	$647 69	
		$647 69

A. A. MACDONALD, NORTH COBALT, ONT.

764—Settlement *re* alleged accident, Feb. 4th, 1914	$33 00	
		$33 00

R. H. Mitchell, Traffic Accountant, North Bay, Ont.

865—Expenses, July, 1914	$2 50	
		$2 50

J. C. McNabb & Co., Ltd., Cobalt, Ont.

804—Ambulance service, May 26th, 29th, 1914	$8 00	
		$8 00

W. J. McCubbin, North Bay, Ont.

810—Uniforms	$363 50	
		$363 50

J. M. McNamara, North Bay, Ont.

871—Legal expenses by-law closing streets, North Cobalt	$18 30	
		$18 30

A. J. McGee, Secretary Treasurer.

660—Amount of duty paid on package of electric railway journals	$0 75	
		$0 75

Northern Ontario Light & Power Co., Ltd., Cobalt, Ont.

685—Electric service, November, 1913	$1,191 60	
692— " " December, 1913	1,315 58	
739— " " January, 1914	1,484 78	
736— " " February, 1914	1,406 25	
787—Material and labor changing pole line on Haileybury Road	639 59	
793—Electric service, March, 1914	1,341 23	
778—Time of man notifying break in transmission line	5 62	
780—Electric current, April, 1914	1,280 02	
843— " " May, 1914	1,056 60	
858— " " June, 1914	1,004 85	
897— " " July, 1914	1,180 58	
904— " " supplied Kerr Lake Station, Aug., 1914	1 53	
906— " " August, 1914	1,221 98	
957— " " September, 1914	1,276 20	
959— " " supplied Kerr Lake Station, Sept., 1914	2 25	
976—	1,341 45	
978—	2 97	
		$15,753 08

Northern Aluminum Co., Ltd., Pittsburg, Pa.

835—500,000 C. M. cable and four reels	$1,455 12	
		$1,455 12

Northern Canada Supply Co., Ltd., Cobalt, Ont.

669—Cement	$91 00	
748— "	97 20	
812—Lamps	26 25	
883— "	35 00	
962— "	5 00	
		$254 45

Nicholson File Co., Port Hope, Ont.

671—Files	$7 32	
		$7 32

NORTHERN ELECTRICAL MFG. CO., LTD., TORONTO, ONT.

673—No. 1317 wall telephones with 143 receivers	$28 90	
743—6 amp. fuse wire	50	
833—Nemco tape	7 50	
844—4-0 groove hard drawn trolley wire	1,755 20	
935—No. 12 S. B. R. C. steel wire	13 65	
955—No. 210 3-8 straight line connectors	279 27	
944—. . .	22 76	
		$2,107 78

NIPISSING CENTRAL RAILWAY—OPERATION ACCOUNT.

908—Applying B. P. A. D., No. 641, North Cobalt Athletic Park Assn., $32.64, commission on receipts of June 25th, 1914, on demand note of May 15th, 1912, as per statement ..	$32 64	
		$32 64

NATIONAL DRUG & CHEMICAL CO., TORONTO, ONT.

942—Litharge, paraffin wax, surgical webbing	$4 03	
		$4 03

NATIONAL SAFE & LOCK CO., CLEVELAND, OHIO.

741—No. 206 safe with package drop	$50 00	
		$50 00

OHIO BRASS CO., MANSFIELD, OHIO.

846—Electrical material	$1,794 79	
		$1,794 79

H. R. O'HARA

662—Lots 32, 34, 36 and 38, east side of Eighteenth Ave., North Cobalt, as shown on plan M. 60, office of Land Titles at North Bay, Ont.	$400 00	
		$400 00

PRESTON CAR & COACH CO., LTD., PRESTON, ONT.

807—Truck castings, No. 820, No. 821	$16 00	
891—85 per cent. charge in connection with Interurban combination passenger, smoking and baggage cars, 18 and 20..	11,113 87	
893—Journal box springs	27 85	
922—Balance due in connection with Interurban passenger, smoking and baggage cars, 18 and 20	1,961 27	
		$13,118 99

PILKINGTON BROS., LTD., TORONTO, ONT.

879—Glass	$12 50	
946— "	9 17	
		$21 67

THE PROVIDENCE GENERAL HOSPITAL, HAILEYBURY, ONT.

899—Hospital attendance *re* alleged personal injury to James McDonald, M.P., 103¾, May 26th, 1914, car 14	$22 75	
		$22 75

N. L. PIPER RAILWAY SUPPLY CO., TORONTO, ONT.

717—Lamps	$3 60	
726—Green discs	2 25	
		$5 85

PAGE, HERSEY IRON TUBE & LEAD CO., LTD., TORONTO, ONT.

848—Black butt pipe	$38 59	
		$38 59

A. C. ROBABECK, NORTH BAY, ONT.

745—Vaseline	$0 50	
		$0 50

RICE, LEWIS & SON, LTD., TORONTO, ONT.

719—Ladle and melting pot	$0 55	
777—Brass cuspidors	5 00	
943—Plumber's pot	2 50	
		$8 05

H. L. RODGERS, ENGINEER'S DEPT., NORTH BAY, ONT.

905—Expenses, June, 1914	$6 50	
		$6 50

RUSSELL CAR & SNOW PLOW CO., RIDGEWAY, PA.

961—Castings	$8 60	
		$8 60

STEPHENSON & SON, NEW LISKEARD, ONT.

898—Advertisement *re* land for sale, North Cobalt	$2 70	
		$2 70

W. F. STEWART, LAND AGENT, NORTH COBALT, ONT.

741—Commission on land sales, January, 1914	$15 00	
710—Expenses, February, 1914	5 50	
782—Commission on land sales, April, 1914	5 00	
822— " " " June, 1914	90 00	
901— " " " July, 1914	21 25	
903—Expenses, July, 1914, sales, July, 1914	2 50	
968—Commission on land sales, October, 1914	10 00	
		$149 25

STEEL COMPANY OF CANADA, LTD., HAMILTON, ONT.

760—Screws	$22 37	
839—Machine, carriage bolts, lag screws and washers	26 22	
854—Moulding, nails	1 68	
964—	11 34	
		$61 61

STRONG DRUG CO., HAILEYBURY, ONT.

970—Repairs to clock, September 18th, 1914	$1 00	
		$1 00

SOUTHAM PRESS, LTD., TORONTO, ONT.

783—Local passenger tariff, E-13	$5 75	
877— " " E-14	6 00	
892— " " E-15	5 75	
		$17 50

SOUTHAM, LIMITED, MONTREAL, QUE.

647—Commutation books, employees' and workmen's books	$107 00	
837—Commutation books, Haileybury to Cobalt	65 00	
907—Commutation strip tickets	150 50	
900—Printing tickets, Form E7	32 00	
966—Printing tickets, Form E1, E2, E4, E7	152 50	
		$507 00

SAMSON CORDAGE WORKS, BOSTON, MASS.

680—Signal cord	$6 05	
		$6 05

WILLIAM SCULLY, MONTREAL, QUE.

779—Buttons	$6 22	
852—Caps	40 60	
886—Buttons	10 03	
		$56 85

SYMON & MCEWEN, NEW LISKEARD, ONT.

687—Labor and cost of lights of glass placed in Bill restaurant by Chas. Platt	$3 55	
		$3 55

SUTCLIFFE & NEILANDS, NEW LISKEARD, ONT.

677—Progress certificate No. 5, work performed on car barns, N. Cobalt	$1,477 48	
747—Certificate No. 1, work to Jan. 25th, sub. station, Cobalt ..	838 35	
749—Certificate No. 6, work to Jan. 25th, new car barns, No. Cobalt	738 75	
732—Certificate No. 7, final, new car barns, No. Cobalt	5,460 37	
894—Certificate No. 2, work performed on sub-station, Cobalt ..	246 85	
		$8,761 80

STAR BRICK CO., NORTH BAY, ONT.

675—Brick	$446 60	
		$446 60

SMART TURNER MACHINE CO., LTD., HAMILTON, ONT.

688—Final estimate 7½ ton hand-power travelling crane	$90 52	
		$90 52

STEWART & WOOD, TORONTO, ONT.

781—Glass	$12 83	
		$12 83

SCYTHES & CO., LTD., TORONTO, ONT.

841—Standard duck	$5 06	
		$5 06

J. H. STILL MFG. CO., LTD., ST. THOMAS, ONT.

850—Handles	$2 53	
		$2 53

DR. G. A. SCHMIDT, COBALT, ONT.

851—For services rendered Victor Larivere, *re* alleged accident, January 19th, 1914	$50 00	
		$50 00

SWEEDISH STEEL & IMPORTING CO., LTD., MONTREAL, QUE.

950—Iron	$2 00	
		$2 00

SHEET METAL PRODUCTS CO. OF CANADA, LTD., TORONTO, ONT.

881—Lanterns	$6 86	
		$6 86

TEMISKAMING & NORTHERN ONTARIO RAILWAY, TORONTO, ONT.

689—Rental of joint facilities re N. C. R. running rights agreement, T. & N. O. Ry., for month of November, 1913 ..	$750 00	
690—Rental of joint facilities *re* N. C. R. running rights agreement, T. & N. O. Ry., for month of December, 1913 ..	750 00	
757—Labor *re* car barn and bills No. 20626-18893	4,095 97	
759—Rental of joint facilities *re* N. C. R. running rights agreement, T. & N. O. Ry., for month of January, 1914 ..	750 00	
740—Amount of our outstanding account against the Township of Coleman deducted from voucher No. 738 in their favor	164 52	
746—To rental of joint facilities *re* N. C. R. running rights agreement, T. & N. O. Ry., for month of February, 1914 ..	750 00	
797—To rental of joint facilities *re* N. C. R. running rights agreement, T. & N. O. Ry., for month of March, 1914	750 00	
799—Supplies and labor, November-December 1913, January 1914, as per statement attached to voucher	5,529 63	
790—Supplies and labor, December, 1913, to February, 1914, as per statement attached to voucher	6,897 91	
792—Rental of joint facilities *re* N. C. R. running rights agreement, T. & N. O. Ry., for month of April, 1914.....	750 00	
847—Supplies and labor, January and February, 1914, as per statement	568 64	
849—Rental of joint facilities *re* N. C. Ry. running rights agreement, T. & N. O. Ry., for month of May, 1914	750 00	
868—Rental of joint facilities *re* N. C. Ry. running rights agreement, T. & N. O. Ry., for month of June, 1914	750 00	
911—Accounts as per detailed statement attached to voucher....	595 18	
913—Rental of joint facilities *re* N. C. R. running rights agreement, T. & N. O. Ry., for month of July, 1914	750 00	
912—Rental of joint facilities *re* N. C. R. running rights agreement, T. & N. O. Ry., for month of August, 1914	750 00	
937—Rental of joint facilities *re* N. C. R. running rights agreement, T. & N. O. Ry., for month of September, 1914 ..	1.025 84	
939—Supplies and labor, May to August, 1914	3,674 23	
914—Supplies and labor, October, 1914	887 92	
916—Supplies and labor, as per statement attached to voucher, May to September, 1914	1,568 62	
920—Interest on moneys advanced by T. & N. O. Ry. up to Oct. 31, 1914	48,527 06	
982—Supplies and labor per diem, raising tents at Haileybury, filling roadway, market spur, Haileybury	2,706 06	
984—Telegraph poles, as per statement attached to voucher, Sept., 1914	204 00	
		$83,945 58

TEMISKAMING TELEPHONE CO., LTD., NEW LISKEARD, ONT.

681—Telephone service, November, 1913, North Cobalt	$3 15
753— " " December, 1913, North Cobalt	1 60
755— " " January 1914, North Cobalt	3 50
712—Moving phone, rental of phone, North Cobalt, from May 1st to Sept. 1st 1914	14 25

TEMISKAMING TELEPHONE CO., LTD., NEW LISKEARD, ONT.—*Continued.*

744—Telephone service, February, 1914	$3 40	
795— " " March, 1914	1 35	
784— " " April, 1914	1 45	
845— " " May, 1914	3 25	
860— " " June, 1914	1 25	
909— " " July, 1914	2 05	
921—Rental of phone, North Cobalt, Sept. 1st, 1914, to March 1st, 1915	12 50	
965—Telephone service, August, 1914-Sept., 1914	3 65	
980—Telephone messages, October, 1914	55	
		$51 95

JOS. E. THOMPSON, TORONTO, ONT.

734—Premiums on various policies, Nov. 20th, 1913, March 7th, 1915	$555 40	
789—Additional premium on Ocean Accident and Guarantee policy No. 109929, Jan. 24th, 1913 to 1914	108 76	
803—Premium on policy No. 292969, Royal Ins. Co., Jan., 1914-15	150 00	
866—Premium on various policies, May 18th, 1914	357 00	
902—Premiums on various policies, May 18th, 1914	390 57	
910—Additional premium on policy No. 292969, Royal Insurance Co., Jan. 20th, 1914-15	88 00	
		$1.649 73

THE THOMAS CO., NORTH BAY, ONT.

859—Receipt books	$0 25	
		$0 25

G. TAYLOR HARDWARE CO., COBALT, ONT.

972—Dynamite and fuse	$7 00	
		$7 00

DR. W. O. TAYLOR, COBALT, ONT.

963—Professional services for James McDonald, alleged injury, M.P., 103¾, May 26th, 1914	$38 50	
		$38 50

TREASURER OF ONTARIO.

918—For proceeds from revenue, Nipissing Central Railway, for year ending October 31st, 1914	$25,000 00	
		$25,000 00

UNITED TYPEWRITER CO., LTD., TORONTO, ONT.

786—Repairing Underwood, No. 288492-5-Pica	$9 00	
		$9 00

WARWICK BROS. & RUTTER, LTD., TORONTO, ONT.

656—Comparative statement forms	$33 50	
		$33 50

WABI IRON WORKS, LIMITED, NEW LISKEARD, ONT.

649—Brake shoes	$85 05	
682— " "	21 00	
703— " "	13 95	
721— " "	32 40	
714— " "	84 00	
728— " "	23 10	
788— " "	29 33	
806— " "	113 75	
814— " "	11 70	
857— " "	33 30	
952— " "	85 95	
		$533 53

WALKERVILLE HARDWARE CO., LTD., WALKERVILLE, ONT.

895—Cement seal paint	$8 25	
		$8 25

YOUNG CO., LTD., NORTH BAY, ONT.

856—Bon Ami	$3 60	
954— " "	3 60	
		$7 20
Total		$226,405 31

NIPISSING CENTRAL RAILWAY.

Distribution of accounts paid fiscal year, November, 1912, to October 31st, 1913.

Maintenance of way and structures	$3,659 91
Maintenance of equipment	324 91
Traffic expenses	40 64
Transportation expenses	16,736 39
General expenses	11,146 45
Shop stock	35,222 24
Fuel stock	582 39
Oil and waste stock	243 62
Tie stock	64 00
Rail stock	174 50
Construction	22,681 67
New Liskeard extension	140 08
Townsites	1,966 63
Station and car privileges	90 87
Pay rolls	43,229 11
Suspense	1,613 22
North Temiskaming extension	432 86
Insurance	1,302 97
Accounts collectible	33 00
New passenger cars	13,177 79
Taxes	15 00
Treasurer of Ontario	25,000 00
Interest	48,527 06
Total	$226,405 31

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Temiskaming and Northern Ontario Railway Commission

THE MINING INDUSTRY

In that Part of

NORTHERN ONTARIO

Served by the

Temiskaming and Northern Ontario Railway

ONTARIO GOVERNMENT RAILWAY

HON. W. H. HEARST, PREMIER

COMMISSION:

J. L. ENGLEHART, Chairman
DENIS MURPHY GEO. W. LEE
A. J. McGEE, Sec.-Treas.

(Appendix to Annual Report Temiskaming and Northern Railway Commission)

CALENDAR YEAR 1914

By ARTHUR A. COLE
Mining Engineer

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
Printed and Published by L. K. CAMERON, Printer to the King's Most Excellent Majesty
1915

Printed by
WILLIAM BRIGGS,
29-37 Richmond Street West
TORONTO.

To His Honour John Strathearn Hendrie, C.V.O., a Lieutenant-Colonel in the Militia of Canada.

Lieutenant-Governor of the Province of Ontario.

May it Please Your Honour:

The undersigned has the honour to present to Your Honour Report of the Mining Engineer of the Mining Industry in that part of Northern Ontario served by the Temiskaming and Northern Ontario Railway for the calendar year 1914.

Respectfully submitted,

F. G. Macdiarmid,

Minister of Public Works.

Hon. Finlay G. Macdiarmid,

Minister of Public Works,

Toronto.

Sir,—I have the honour, by direction, to submit to you, Report of the Mining Engineer on the Mining Industry, in that part of Northern Ontario served by the Temiskaming and Northern Ontario Railway, for the calendar year 1914.

I have the honour to be,

Sir,

Your obedient servant,

A. J. McGee,

Secretary-Treasurer.

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION

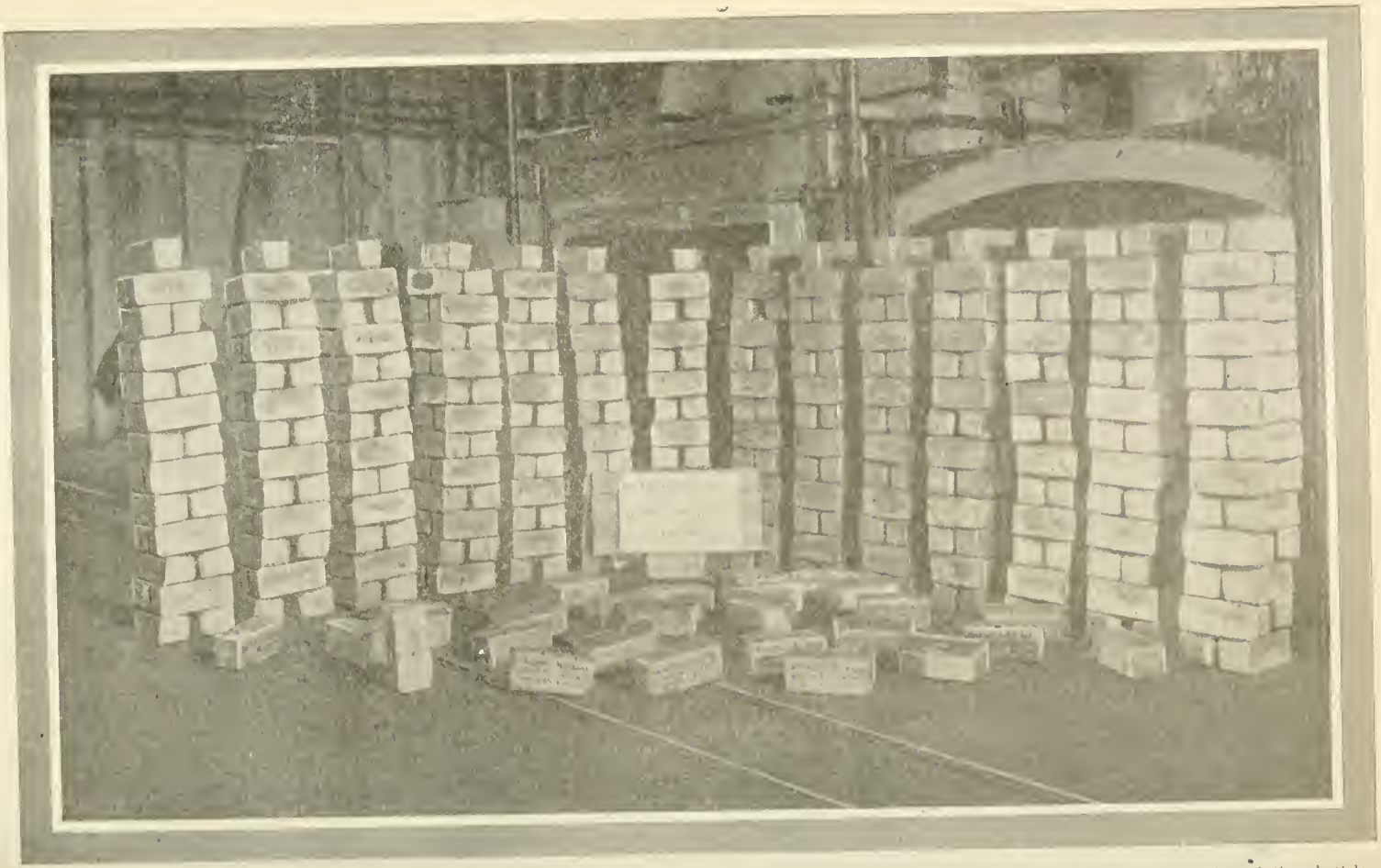
J. L. ENGLEHART, Chairman.

DENIS MURPHY, Commissioner.

GEO. W. LEE, Commissioner.

A. J. McGEE, Secretary-Treasurer.

A. A. COLE, Mining Engineer.



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Silver Bullion Shipped by Nipissing Mining Co., Ltd., Cobalt, Ont., 25th February, 1914; 381 bars containing 453,213 oz. Troy, or 15¼ tons Avoirdupois. Value, $260,681.16.

GENERAL

The year 1914 is marked by many abnormal conditions, and these are seen in mining as well as in other industries.

In the first half of the year the gold industry showed steady progress at both Porcupine and Kirkland Lake. The silver output, however, at Cobalt continued to fall off, owing primarily to the natural decline in production, but this was accentuated by a gradual fall in the price of silver, the average price for July being 54.678 cents, or 5 cents below the average price for 1913.

On the outbreak of the war it looked as if both gold and silver output would, as a direct consequence, be much curtailed. This eventuality has happily been avoided. The call for gold had the effect of stimulating the gold mining industry in the case of producing mines, but it was different with silver mining.

During the first days of the war the mines that produced silver bullion and could get it to London received satisfactory returns owing to the heavy buying for coinage purposes at that time and the abnormal foreign exchange which was in their favor. Very soon, however, London silver quotations were suspended, and as a consequence, the same thing happened in New York, as all quotations are based on the London price. Much uneasiness was felt for some weeks and a few of the mines at Cobalt closed down, while almost all curtailed their output. When quotations were resumed in London it was only on consignments that were actually on hand in London at the time of the sale. The mines that produce their own bullion were in an advantageous position, as they were able to dispose of their output if they were willing to accept the low price ruling for silver.

The smelters at first would only accept ore from the mines with which they had contracts, and even then, as most of their contracts were dependent on the New York price, of which there was none at the time, new arrangements had to be made. For awhile this arrangement was either to pay the mine about eighty per cent. of what was considered the value of the silver, leaving the final adjustment to be made when the silver could be sold, or to return to the mine the silver bullion recovered, charging only for the treatment of the ore.

Application was made to the Dominion Government and arrangements were made whereby the banks could take security on bullion, which could be held by them, or by what might be termed warehousemen. It was further arranged that should any bank find itself called upon to use its assets to too large an extent for what this one class of business might warrant, it would lodge the bullion with the Government and obtain a certain proportion of the value of the security by way of a loan to the bank to offset the original advance. The unsatisfactory feature of this arrangement appears to be the strong objection of any of the banks in Canada to take any unsual action in their financing, that the public may become aware of, owing to the unwarranted rumors that become prevalent thereby.

As a matter of fact, this expedient was not required. Except for a short time soon after the outbreak of hostilities there has been no actual difficulty in disposing of the silver so long as the seller would take the market price. Although the price continued low those mines that closed down in August gradually resumed operations till at the end of the year all were again working, though the output in many cases is still restricted.

Apart from the market there were certain commodities required for the treatment of gold and silver ores, which were ordinarily obtained from Europe, but of which the supplies were threatened on account of the war. These were cyanide, zinc dust and pebbles.

CYANIDE.—It was feared that those mines using cyanide might have to curtail their output, because much of the world's production of cyanide was of German manufacture, the buying of which is now contrary to the laws of Canada. As a matter of fact, it was found on inquiry that all the mines of this district, with two exceptions, were using cyanide manufactured in Great Britain by the Cassel Cyanide Company, Limited, of Glasgow, Scotland.

The British Government, realizing the importance of the production of gold and silver, particularly at the present time, asked the Cassel Company to sell no cyanide outside the British Empire until the gold and silver mines within the Empire had been supplied.

Following this programme, therefore, the Cassel Cyanide Company sent a special representative into Northern Ontario to confer with the mine managements. The company is making large additions to its present plant so as to be able to carry its increased production load, but it will be a number of months before these can be completed.

The following extract taken from the *Times* of 9th December, 1914, gives in part the report of Mr. D. S. Carson, Chairman, at the Annual Meeting of the Cassel Company:—

"As to general prospects, since the outbreak of the war all departments had been working at high pressure. Their manufacturing and financial resources had enabled them to overtake an important shortage of cyanide on the Rand occasioned by the cessation of shipments from Germany. Failure on their part to do so would have meant a curtailment of mining operations in South Africa and a serious decrease in the amount of gold available for the Bank of England, and consequently for the prosecution of the war. While many industries were suffering at this time through lack of products of which Germany had a monopoly, it was satisfactory to know that there was more than enough cyanide being manufactured in the United Kingdom to-day to meet legitimate demands within the British Empire."

Owing to increased cost of raw materials, due directly or indirectly to the war, the price of cyanide has risen to 18 cents per pound, which is a rise of three cents above the price immediately before the war.

The offer that the Cassel Cyanide Company is now making to the mines is to keep them supplied with cyanide on the following terms: 18 cents per pound to June, 1915; 16 cents per pound to the end of 1916; and 15 cents, or the normal price, during 1917, providing that the mines on their part will give the company an exclusive cyanide contract for two years, giving an estimate now of what their requirements are likely to be during that time.

The mining companies now using cyanide in the district are:—

Cobalt—
- Buffalo.
- Dominion Reduction.
- Nipissing.
- O'Brien.

Porcupine—
- Dome.
- Hollinger.
- McIntyre.
- Porcupine Crown.
- Vipond.

To these will likely be added in 1915:—

Cobalt—Cobalt Reduction.

Kirkland Lake—Tough Oakes.

Porcupine—Schumacher.

The normal monthly consumption of cyanide in the district is about 50 tons in Cobalt and 20 tons in Porcupine. This may be expected to gradually increase till the consumption a year from now should run over 100 tons per month, an amount which is almost half the 1913 consumption of the United States.

Zinc Dust.—Since the outbreak of war the zinc dust situation has also been creating some uneasiness. Before August last, the main supplies came from Belgium and Silesia, but these being cut off, the mines now have to look to the United States.

The Belgian price was 6¾ cents, but now the price is 11 cents f.o.b. Cobalt. The method of preparation adopted in the United States is different from that of the Belgian furnaces, the American product carrying a slightly higher percentage of oxide and more lead, and therefore having a proportionately smaller precipitating power.

Pebbles.—The supply of pebbles for pebble-mills formerly came from Denmark and France. Shipments from these points are now practically cut off, but an adequate supply can be obtained from Newfoundland and Sweden. A consignment of 1,200 tons of pebbles was recently brought in from Newfoundland.

The European pebbles are flint, but those from Newfoundland are a greywacké. The following is the report on a microscopic analysis of a Newfoundland pebble made at the Bureau of Mines, Toronto:—

"Name—Greywacké. Microscopically the slide consists of about sixty-five per cent. of angular and sub-angular quartz grains, five per cent. of angular feldspar fragments with masses of chlorite ten per cent., and sericite five per cent., set in a fine ground mass of chlorite, sericite and quartz. Much kaolin and some pyrite, iron oxide, sphene and apatite are present."

At the close of the year (1914) the price per ton of pebbles was $21.17 at Cobalt and $21.69 at Porcupine—practically the same price as before the war. The annual consumption of pebbles is about 600 tons for Cobalt and 1,400 tons for Porcupine.

The mills now using pebbles in this district are:—

Cobalt—
- Beaver.
- Buffalo.
- Cobalt Lake.
- Dominion Reduction.
- McKinley-Darragh.
- Nipissing.
- O'Brien.
- Penn Canadian.

Kirkland Lake—Tough Oakes.

Larder Lake—Huronia.

Porcupine—
- Dome.
- Dome Lake.
- Hollinger.
- McIntyre.
- Porcupine Crown.
- Vipond.

GOLD

The effect of the war on the gold camps has been to stimulate production from the already producing mines, but where more capital was required, as for prospecting and early development, most work was curtailed.

The gold production from Porcupine is shown in the following tables:

PORCUPINE GOLD PRODUCTION, 1914.

Mines and Mills.	Tonnage Milled.	Bullion Ounces.	Value.
			$ c.
Acme	2,910	1,500.00	31,000 00
Dome	221,390	51,016.12	1,054,503 24
Dome Lake	1,638	556.00	8,832 32
Hollinger	208,936	134,000.00	2,688,354 80
Porcupine Crown	40,857	57,513.00	671,177 06
Porcupine Pet	1,433	580.40	8,264 00
Rea	11,607	6,444.00	125,000 00
McIntyre	62,209	27,500.00	549,583 00
Vipond	9,559	3,217.95	66,514 58
	560,539	282,327.47	5,203,229 00

PORCUPINE GOLD PRODUCTION, 1910-1914.

Year.	Ore Treated.	Gold Bullion.	Value.
	(Tons.)	(Ozs.)	$
1910	1,060	1,947	35,539
1911	707	851	17,187
1912	.....	83,726	1,730,628
1913	.....	207,583	4,284,928
1914	560,539	282,327	5,203,229
	562,295	576,434	11,271,511

There were two other gold producers outside of Porcupine, viz.:

Tough Oakes at Kirkland Lake and the La Mine d'Or Huronia near Larder Lake.

Promising prospects were found during the year near Sesekinika Station. Mileage 176, in the Township of Maisonville. The most noteworthy were the Smith and Labine, the Sullivan and the Malouf claims. The veins show patches rich in gold, associated with certain tellurides, and although very persistent are narrow. Little more than assessment work has been done on these claims, so that the value of the district has yet to be proven.

CANADIAN MINING & FINANCE CO., LTD.

The Canadian Mining & Finance Co., Ltd., owns the Acme and Millerton properties and a controlling interest in the Hollinger. In order to reduce costs a plan of centralization is gradually being worked out. Already the same management and office staff operates these three properties.

A central shaft with six compartments (down 220 feet on 1st January, 1915) is being sunk on the Acme property near the Hollinger line. It is proposed to

Wooden Penstock and Forebay, Sandy Falls, Ont. Northern Canada Power Co., Ltd.

Waiwaiten Falls Power Development, Showing Penstock During Construction.
Northern Canada Power Co., Ltd.,

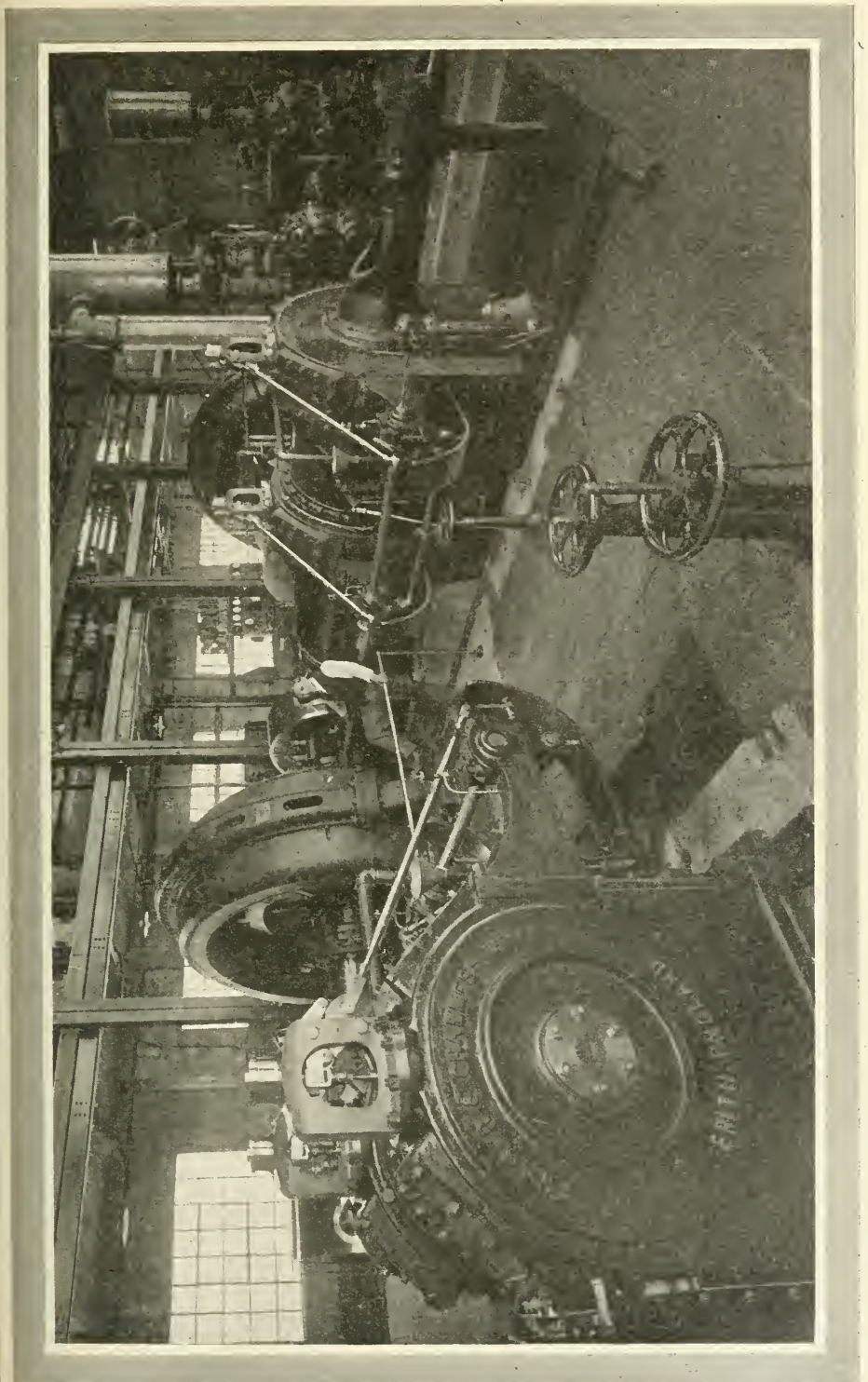
cut stations at 425 ft., 800 ft., 1,250 ft., etc., and from these levels to run haulage crosscuts to tap the workings of all three properties. Between levels the ore will be developed by sub-levels, but the ore will be dropped to the main levels for hoisting to the surface. Electric locomotives operating in the crosscuts will collect the ore from each property and deliver it at the central shaft. The ore will first pass over coarse grizzleys and through preliminary crushers, which will reduce it to a size suitable for stamping in the Hollinger Mill. It is expected that the central shaft will be in operation by the middle of 1916, but in the meantime temporary expedients will be used at the Hollinger and Acme to tide over the time required for sinking and equipping this shaft.

The original Hollinger mill was designed to treat 500 tons per day, but to this was added 20 stamps, giving it a total of 60 stamps, bringing the present tonnage up to 830 tons per day. The present Hollinger needs for milling capacity are about 1,000 tons per day, while the Acme will require 500 tons per day to be treated within a few months. To meet this growing capacity 40 stamps are being installed to treat Acme ore, and a large addition to the cyanide plant is nearing completion, half of which will be used for Hollinger ore and the other half for Acme. It is expected to have these additions in operation by the end of February, 1915.

The Canadian Mining and Finance Co., Ltd., has completed the construction of a central power plant on the south side of Gillies Lake. The building is of steel frame construction, with concrete curtain walls and roof. It is 51 feet wide x 120 feet in length, and is designed to accommodate four compressors each of 4,500 cu. ft. of free air per minute capacity. Three compressors are now in commission, with space left for an additional unit. One compressor, designed and built by Fraser & Chalmers, of London, England, is of special design, being fitted with Hoerbiger valves of variable volume gear of the Doerfel type, which automatically adjust the output of the machine to the exact requirements of the demand for air, thus doing away with peak loads and thereby reducing the cost of power, which is purchased upon a basis of peak loads. The cylinders are 22½" x 38" x 30" stroke. The speed is 125 r.p.m. This machine has a complete range of capacity from zero to full load, automatically controlled by suitable governor gear. The other two compressors were designed and built by the Nordberg Manufacturing Company, of Milwaukee, Wis. They are designed to run at full load continuously, and have no variable volume gear, the cylinders are 22" x 37" x 31" stroke. The valves are Corless and the speed is 125 r.p.m. These compressors possess the unique advantage of being reversible; thus in the event of an interruption to the supply of electric power they may be operated as steam engines and their motors may be driven as generators of electric power. The supply of steam for this purpose can be obtained from a battery of four Wickes vertical water tube boilers, each having 3,000 sq. ft. of heating surface and connected through suitable breeching to an induced draft fan which enables the boilers to be run at a high overload during such time as the compressor plant is being used as an auxiliary steam driven electric power plant.

In addition to the usual intercoolers each compressor is equipped with a Fraser & Chalmers vertical aftercooler, each having 1,100 sq. ft. of cooling surface and so designed that the tubes and tube plates can be lifted out of the cooler shell for cleaning.

The boiler house is built on the east end of the compressor building and is of the same type of construction. It accommodates the electrically driven pumps for mill water. A concrete intake and suction well has been built to insure a liberal supply of clean water at all seasons of the year.



Air Compressor Plant, Canadian Mining & Finance Co., Ltd., Timmins, Ont.

Hollinger Gold Mines, Limited.

The following notes on the Hollinger Gold Mines, Ltd., are taken from the fourth Annual Report of the company covering operations for the year 1914:—

RECORD.

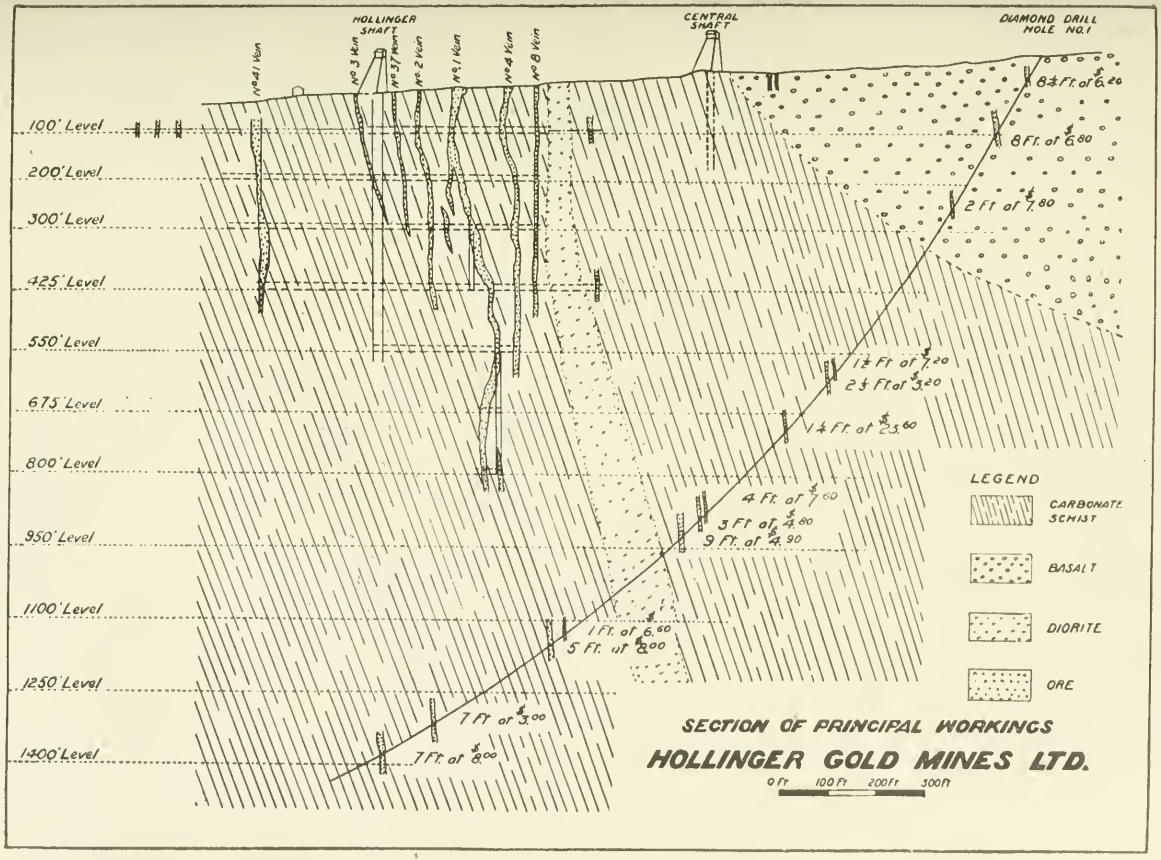
Year.	Tons of Ore Milled.	Values Recovered.	Dividends Paid.
		$ c.	$
1911	1,000	46,082 52	.....
1912	45,195	933,682 00	270,000
1913	138,291	2,466,220 24	1,170,000
1914	208,936	2,688,354 80	1,170,000
Totals	393,422	6,134,339 56	2,610,000

The year has been a successful one for the company and in the words of Mr. P. A. Robbins, the manager, there have been no disappointments of any kind in the mine during the past year, and it is expected that the present year will show continued improvement in the property. Underground work was hampered during a greater part of the year by an insufficiency of compressed air for operating drills, but better progress has been made since November, when the new air plant of the Canadian Mining & Finance Co. was put into operation.

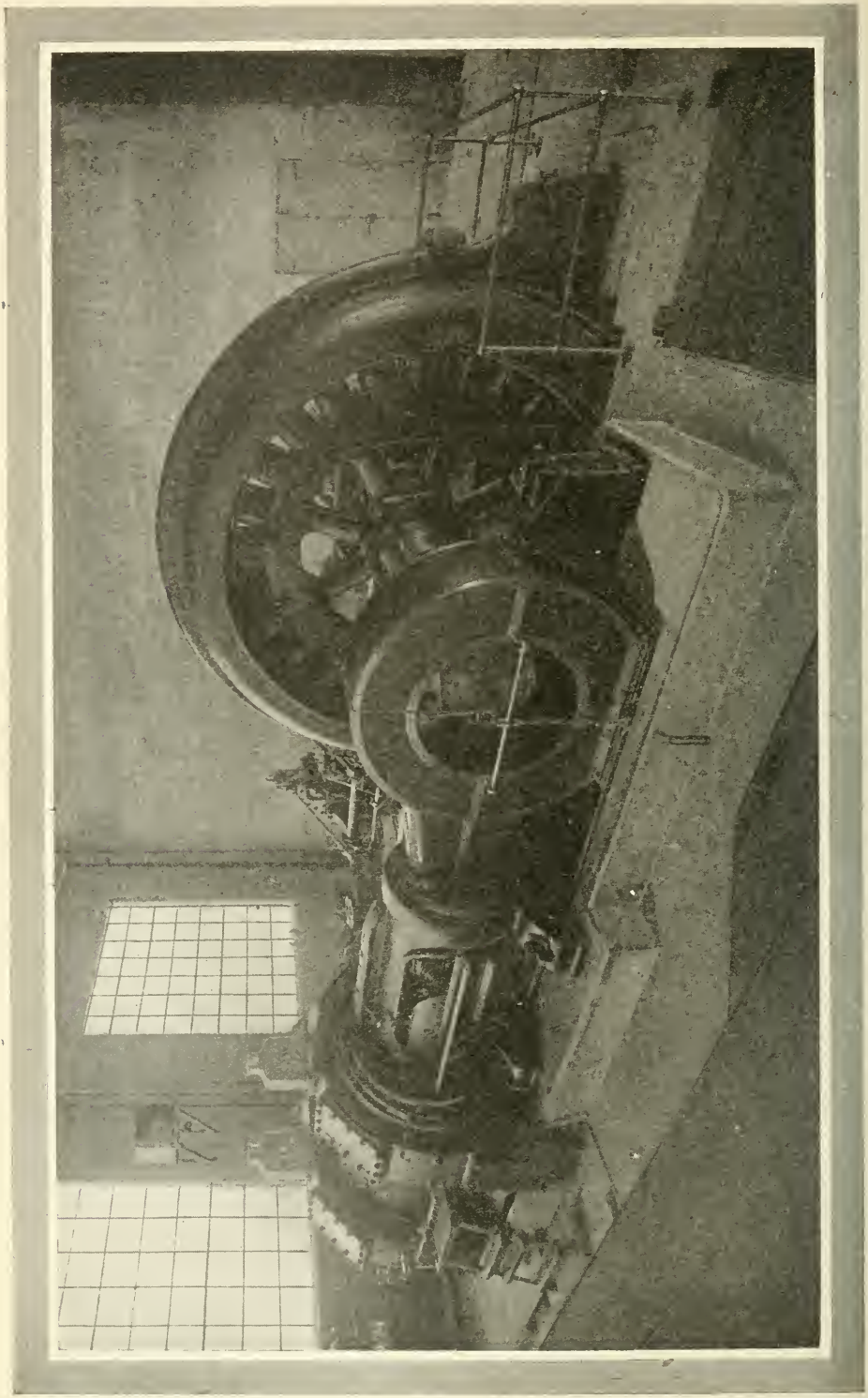
The 800-foot level has been reached and the No. 1 Vein has been found to persist to that level. The main shaft has been carried down to 550-feet and will be continued to 800-feet during the present year. The levels below 800-feet will be opened up from the new central shaft of Canadian Mining & Finance Co. Ltd., although it is possible that a winze may be sunk below 800-feet before the Central Shaft workings reach the Hollinger ore bodies.

On December 31st, 1914, the ore reserves were estimated at 1,162,960 tons of an average value of $11.49 per ton, giving a gross value of $13,358,420. This estimate shows an increase of 317,660 tons of ore and an increase from $11,604,800 to $13,358,420 in gold contents as compared with the estimates made at the end of 1913. During the year the mill treated 208,936 tons, containing $2,857,397.54, which figures taken with the increase in estimated reserves show 526,596 tons containing $4,611,017.54 to have been developed during the year. The average value of the ore has fallen from $13.71 per ton to $11.49 per ton, the fall off in grade being primarily due to the development of considerable tonnages of lower grade ores. The potentialities of the property are not estimated in the estimate of ore reserves.

Fifty-four veins have been located upon the property and thus far only twelve of these have been reached by underground workings. Diamond drill holes have indicated a number of ore bodies carrying payable values which have yet to be reached by underground workings. The plate entitled "Section of Principal Workings" shows the results obtained by means of diamond drill hole



Diamond Drill Hole—Hollinger Mines.



One of three Air Compressors in Plant of Canadian Mining & Finance Co., Ltd.
Each compressor has a capacity of 4,500 cubic feet of free air per minute

No. 1. This hole was driven to an inclined depth of 2,000 feet and when drilling was stopped had reached a vertical depth of 1,425 feet below the surface. In the course of drilling thirteen mineralized zones were passed through.

The information furnished by the drill hole is two-fold; first there is no change in rock formation to a depth of 1,425 feet; second there is no change in vein characteristics to a depth of 1,425 feet. The gold values obtained by drilling are about those which might be reasonably expected if a drill hole were to be driven through the vein system at any random point below the 200 feet level.

It is reasonable to assume that some of the ore bodies encountered in drilling are continuations of the veins being worked upon the upper levels, and such being the case, it is not unreasonable speculation to anticipate from the ore bodies now being worked, a production of something over twice the value of the ore shown in the "Estimate of Ore Reserves." Beyond this are the possibilities of production from the veins not yet developed, and also the value of ore which may be encountered at levels below the depth of the bore hole.

During the past year the number of stamps in the mill has been increased to sixty, and alterations have been made to the cyanide plant, with the net result that the capacity of the mill has been increased to 800 tons per day. The rapid development of the mine has continually demanded increased milling capacities and the decision to treat ore from the Acme and Millerton properties now makes it necessary to add considerably to the milling plant. It is expected that by the middle of February eighty stamps will be dropping, to be followed by twenty more due the middle of March.

Present milling practice adheres closely to the lines laid down in the original mill, except that the Company is now about to resort to continuous decantation for the gritty, quick settling portion of the ore, while the more flocculent portions will continue to be treated in the filter plant.

The treatment of concentrates has not yet been perfected, and these are still being stored after making a partial recovery of their contained values.

Experience in the mill indicates strongly that the best results will be obtained by separating the ore into its component parts and providing a special treatment for each.

It is anticipated that the final practice in the mill will be:

Amalgamation for Nuggets.

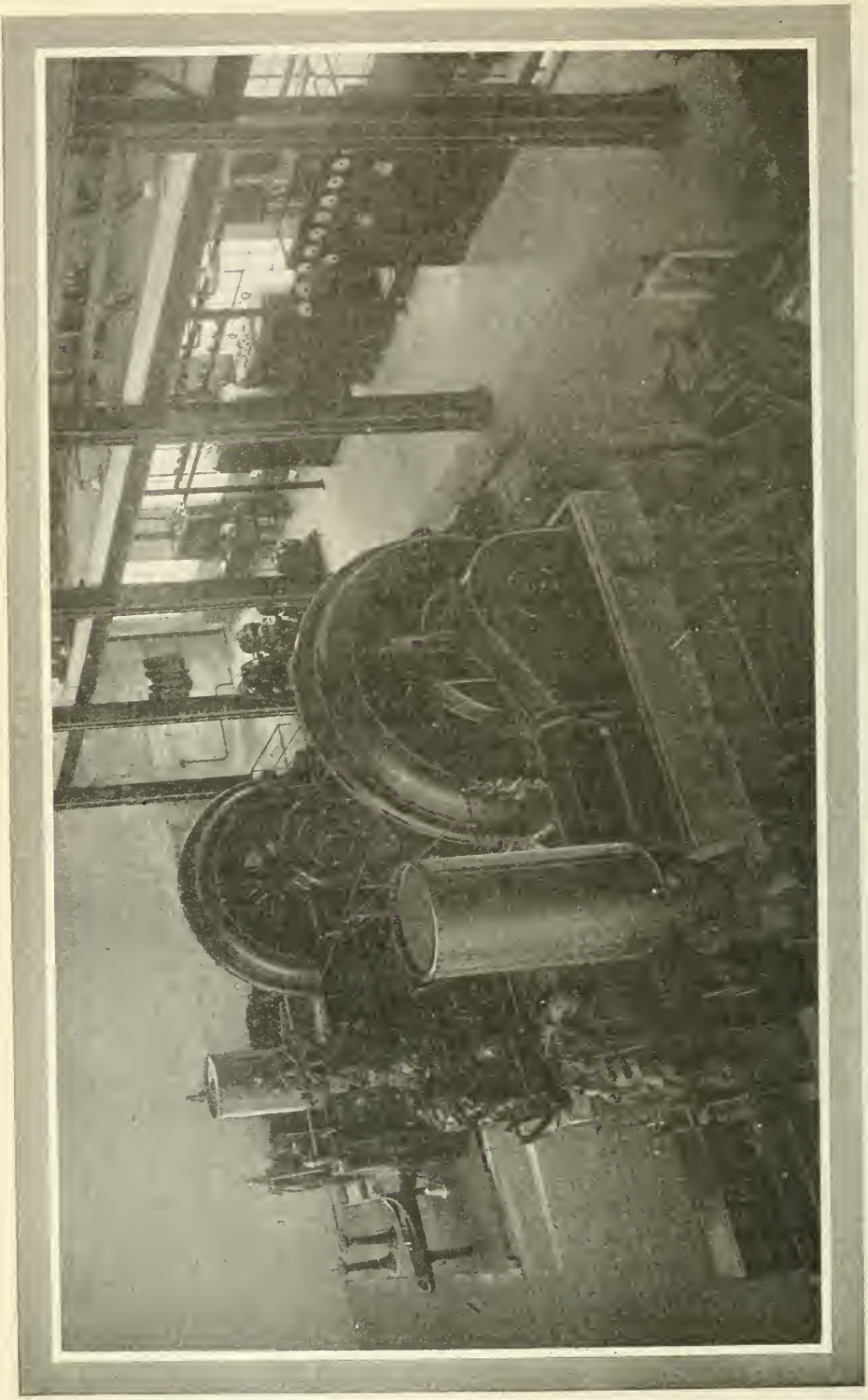
Settling or Filtration for Slimes.

Continuous decantation for Sands.

Regrinding and increased agitation for concentrates.

The working costs for 1914 were $4.421 per ton to which has been added a cost of $.792 cents to cover the amount written off plant for depreciation, thus bringing the total up to $5.213 per ton. Similar figures for 1913 were $6.11 per ton, net, and $6.97 per ton, gross costs.

During the year thirteen dividends of $90,000 each, or $1,170,000, were paid, amounting to an annual dividend of 39 per cent. The total dividends to the end of 1914 amounted to $2,610,000. The dividend was then raised to 4 per cent. per four-weekly period, and it would appear that this can be paid without any difficulty. During the year a gain of $165,271.12 was added to the quick assets of the company, giving a total of $664,603.48, and at the same time capital assets gained $288,550.49 over 1913 figures making them $456,550.49.



View showing parts of two Nordberg and one Fraser & Chalmers Compressor in plant of Canadian Mining & Finance Co., Ltd. Supplying air to Hollinger, Acme, Millerton and other mines.

The Acme Gold Mines, Limited.

The Acme Gold Mines, Ltd., is incorporated under the laws of Ontario, with a capital of $3,000,000. Its claims adjoin the Hollinger on the north-east and cover the continuation of the Hollinger vein system. The company has four shafts in operation, is carrying on development work on the 100, 200, 300, 425 and 550 ft. levels, and is sinking to reach the 800-ft. The company is owned entirely by the Canadian Mining & Finance Co. Ltd., which is a close corporation. Forty stamps in the Hollinger Mill are expected to be ready by March 1st, 1915, to handle Acme ore.

At the present time there are sixty faces developed from which ore can be taken to supply the mill without doing any stoping.

Later on extensions will be made to the Hollinger Mill to handle Millerton ores also.

Porcupine-Crown Mines Limited.

Development.

The total development for the year equals 4,633 feet made up as follows:

—	Prior to 1914	1914	Total to Date
Crosscutting	2,526 ft.	2,471 ft.	4,997 ft.
Drifting	2,104 ft.	1,674 ft.	3,778 ft.
Raising and Sinking	1,292 ft.	488 ft.	1,780 ft.
Totals	5,922 ft.	4,633 ft.	10,555 ft.

Additions have been made to the ore shoot at four levels, particularly at the 200-foot level, where a larger body of ore than any heretofore discovered has been encountered, although of medium grade. During the year, a vertical diamond drill hole was put down at a point near the eastern boundary and about 900 feet south of the northern boundary. At 275 feet the hole passed through 18 inches of vein assaying $4.00. At 1,100 feet about 20 feet of vein material was cut, but this did not show any appreciable value. The existence of the vein at this depth is encouraging although the values were unsatisfactory.

Production.

The net value of production of the property for the past year after deducting mint charges was $689,151.46.

65,198 tons of ore and 11,554 tons of waste were broken.

The excess ore broken, over milled, and on the timbers in the mine is 24,341 tons.

The mill treated 40,857 tons of ore.

Average value of Heads	**$17 18**
Average value of Tails	**0 47**
Average Extraction	**97.26%**

Milling.

The results of milling operations have been very satisfactory. The continuous decantation process has not only been justified, but has proved remarkably adapted to the ores of the Porcupine District, and with one exception has been adopted by all the important mines in the district.

The average extraction of the mill for the year was 97.26 per cent. in spite of the fact that on two occasions, once in February and once in October, carbon bearing rock caused reprecipitation of some of the gold in solution, and a resultant loss in the tails.

Practically no change has been made in the flow sheet except the installation of another agitator, which has increased the extraction by several cents per ton.

Costs of Operation.

The operating costs were materially reduced for the year.

The following is a detailed distribution of all charges and cost per ton.

Distribution of Costs.

		Cost per Ton	
		Ore Broken	Ore Milled
Mining, Development, Exploration and Underground...	$130,554 85	$2 00	$3 20
Hoisting and Tramming	16,074 33	.....	39
Mill Operation	56,621 11	.....	1 31
Power, Heat and Maintenance	61,498 55	.....	1 51
Mine General Expense	46,177 24	.....	1 12
Depreciation, Administration and Taxes	31,270 91	.....	76
	$339,196 99	.....	$8 29
Cost of 24,341 tons of ore broken but not milled and cost written off	48,682 00	.....	1 20
Cost per ton of ore milled	.....	.....	$7 09

Gross value production		$691,394 29
Mint charges		2,242 83
		$689,151 46
Mine Operation Expense		339,196 99
Mine Operation Net Profit		$349,954 47

Dividends.

Dividends have been paid by the company as follows:

1914		
April 1st	3%	$60,000 00
July 1st	3%	60,000 00
October 1st	3%	60,000 00
		$180,000 00
1915		
January 2nd	3%	60,000 00
		$240,000 00

Ore Reserves.

During the year there were added to the ore reserves 40,000 tons of a value of $297,000. This gives the property at the end of the year total ore reserves equivalent to 85,000 tons with a value of $1,510,000.

At the end of 1913, development work had apparently reached the lateral extent of the ore body, being limited on the north by the Hollinger property, and on the south by the main fault. During the first eight months of the year the development work was very discouraging both in proving the ore beyond the fault on the upper levels, and in the development at the 500-foot level. The development during the last four months, however, has not only proved the ore to exist at the 500, but has been most satisfactory south of the fault, and as a result, on one level (the 300) almost 1,000 feet of ore shoot has been developed. The vein south of the fault has not proved to be as rich as the original portion of the vein, and although practically as much tonnage has been put in sight as that extracted, the value of the new ore is not as great as that of the ore milled during the past year.

PORCUPINE CROWN

Monthly Mill

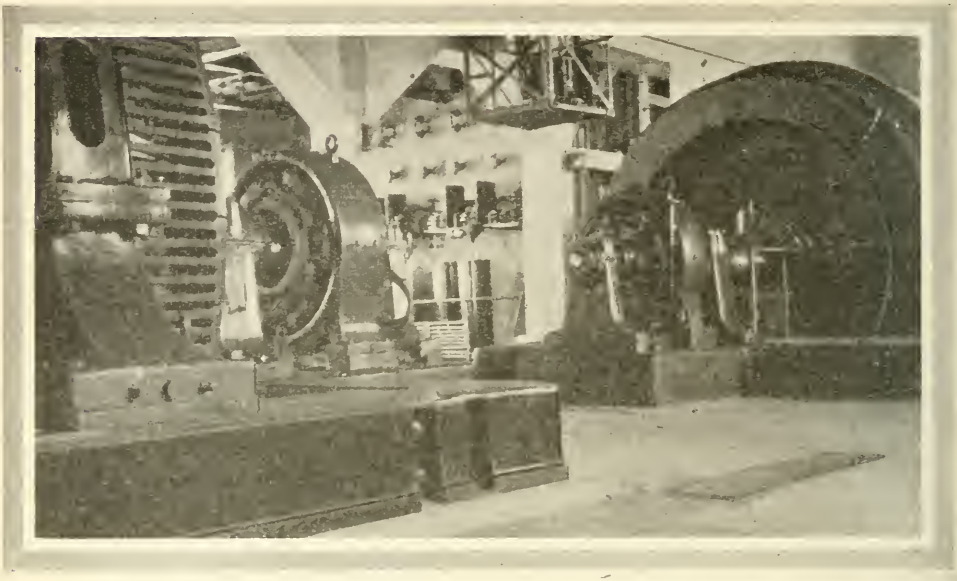
Period.	% Time Run	Av. Tons Milled per 24 hrs.	Tons Milled in month.	Tons Milled to date.	Gold produced per month.	Gold produced to date.	Gold in Tailings in month.	Gold in Tailings to date.
	%				$ c.	$ c.	$ c.	$ c.
Prior to Jan. 1, 1914.	.....	.....	.....	19,713	.....	322,853 88	.....	59,922 99
January	64.50	106.3	3,297	23,010	49,662 82	372,516 10	2,308 40	62,231 39
February	57.00	99.0	2,774	25,784	40,833 67	413,350 37	3,119 72	65,351 11
March.....	79.75	142.6	4,420	30,204	87,138 99	500,489 36	2,697 49	68,040 60
April	87.50	119.6	3,588	33,792	64,155 29	564,644 65	1,540 78	67,647 03
May.....	93.67	115.1	3,570	37,362	51,273 63	615,918 28	1,617 24	69,589 38
June	84.50	96.8	2,903	40,265	47,962 96	663,881 24	821 44	72,028 06
July.....	89.35	103.5	3,209	43,474	46,159 70	710,040 94	1,250 82	73,278 88
August	90.83	113.5	3,532	47,006	58,166 98	768,207 92	1,123 91	74,402 85
September....	95.19	117.9	3,536	50,542	58,241 34	826,449 26	1,171 28	75,574 13
October.....	97.54	123.8	3,839	54,381	67,869 43	894,318 69	2,330 91	77,905 04
November	89.39	106.2	3,186	57,567	65,492 82	959,811 51	946 04	78,851 08
December	79.64	97.2	3,013	60,580	45,572 12	1,005,383 63	925 38	79,776 46
1914 Totals and Hours	84.24	111.9	40,861	60,580	682,529 75	1,005,383 63	19,853 41	79,776 46

Tailings include amalgamation tailings which may be re-treated: 80% of these tailings amounts to $38,634.05. Assuming that 80% of value of amalgamation tailings may be recovered upon cyaniding the per cent. extraction to date becomes 96.20.

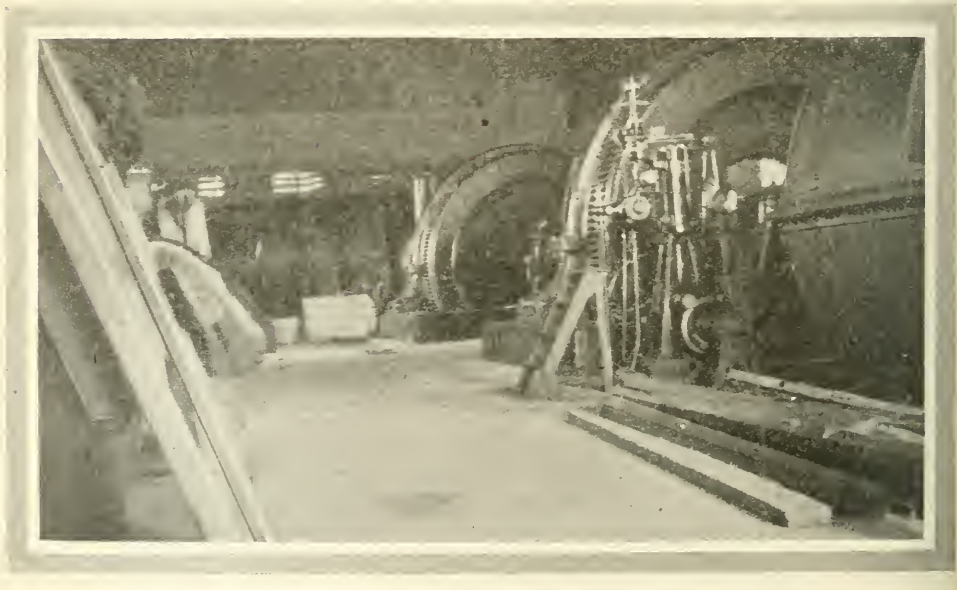
MINES, LIMITED.

Summary for 1914.

Gold value of Ore in month.	Gold value of Ore to date.	Monthly.			To Date.			Extraction.	
		Gold per ton Heads	Gold per ton Tails	Gold per ton recovered.	Gold per ton Heads.	Gold per ton Tails	Gold per ton recovered.	In Month.	To Date.
$ c.	$ c.	$ c.	c.	$ c.	%	%	%	%	%
.....	382,776 87	.....	.....	.....	19.41	3.03	16.38	.....	84.38
51,971 22	434,748 09	15 76	70	15 06	18.89	2.70	16.19	95.55	85.70
43,953 39	478,701 48	15 84	1 12	14 72	18.56	2.53	16.03	92.90	86.36
89,836 48	508,537 96	20 32	41	19 91	18.82	2.25	16.57	96.88	88.04
65,696 07	634,234 03	18 31	42	17 89	18.76	2.00	16.76	97.65	89.33
52,890 87	687,124 90	14 81	45	14 36	18.58	1.86	16.52	96.96	89.88
48,784 40	735,909 30	16 80	28	16 52	18.27	1.78	16.49	98.31	90.25
47,410 52	783,319 82	14 82	39	14 43	18.01	1.68	16.33	97.36	90.66
59,290 95	842,610 77	16 78	31	16 47	17.94	1.58	16.36	98.14	91.19
59,412 62	902,023 39	16 80	33	16 47	17.84	1.49	16.35	97.91	91.64
70,200 34	972,223 73	16 20	61	17 59	17.88	1.43	16.45	96.64	92.00
66,438 86	1,038,662 59	20 85	30	20 55	18.04	1.36	16.68	98.56	92.46
46,497 50	1,085,160 09	15 43	31	15 12	17.91	1.31	16.60	97.99	92.68
102,383 22	1,085,160 09	17 18	47	16 71	17.91	1.31	16.60	97.26	92.68



Interior view, showing direct connected exciters, Sandy Falls, Ont.
Northern Canada Power Co., Ltd.



Interior view, showing Wheels and Governor, Sandy Falls, Ont.
Northern Canada Power Co., Ltd.

McIntyre-Porcupine Mines, Limited.

The following is a summary of work done during the calendar year 1914:

Tons of ore broken	70,896
Tons of ore milled	62,209
Value per ton	$9 26
Bullion shipped	$549,583 00
Footage Driven.	
Shafts	209.0 feet
Drifts	4,059.55 feet
Crosscuts	1,420.60 feet
Raises	1,079.80 feet
Winzes	146.40 feet
Total	6,915.35 feet
Diamond drilling	3,294.6 feet
Average Number of Men Employed.	
Underground	95
Surface, including construction	78
Depth of Shafts.	
No. 1	300 feet
No. 2	90 feet
No. 3	90 feet
No. 4	600 feet
No. 5	400 feet

Construction.

Addition of a 150-ton unit to the cyanide mill.

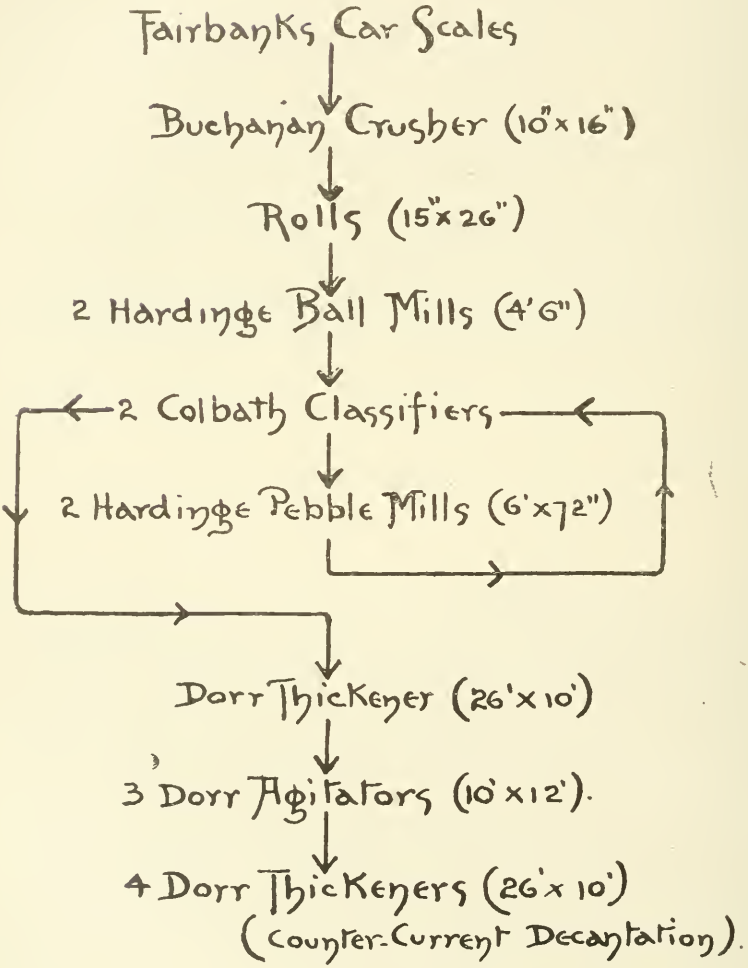
Porcupine Vipond Mines, Limited.

Underground work restarted at this mine on August 5th, 1914. A summary of the work accomplished in 1914 is as follows:

Level.	Drifts.	Cross-cuts.	Raises
	feet.	feet.	feet.
100 feet	215.8	27.5	186.4
200 "	133.5	26.4	.....
300 "	23.8	28.8	.....
Total	373.1	82.7	186.4

Total Footage to January 1, 1915.

Level.	Shafts.	Winzes.	Raises.	Cross-cuts.	Drifts.	Totals.
100 feet	.....	10.0	222.0	486.0	1,172.4	1,890.4
200 "	.....	12.0	165.0	862.0	1,190.6	2,229.6
300 "	.....	.....	.....	409.0	539.4	948.4
Shaft No. 1	323.0	.....	.....	.....	.....	323.0
	323.0	22.0	387.0	1,757.0	2,902.4	5,391.4



PORCUPINE VIPOND MILL.

Shaft No. 2 is 63 feet deep, and there is some work done at the 60 foot level, but there is no record of the amount.

The addition of a cyanide plant to the mill was started May 10th and completed on 1st September, on which latter date the complete mill was put into operation. The counter current continuous decantation system was adopted and is working very satisfactorily.

The following mill data is for the year 1914:

Tons Treated	9,559 tons	
Gold Bullion Produced	3,217.95 fine oz.	$66,514 58
Silver Bullion Produced	413.84 fine oz.	200 57
Precipitate on hand December 31st		3,758 77
Refinery slag on hand December 31st		2,304 00
Plant Absorption		1,186 00
		$73,963 92
Tailings Loss		8,309 25
Total Value of Ore Treated		$82,273 17
Average Value per Ton		$8 60
Loss per Ton		0 86
Extraction		90%

The Rea Mine.

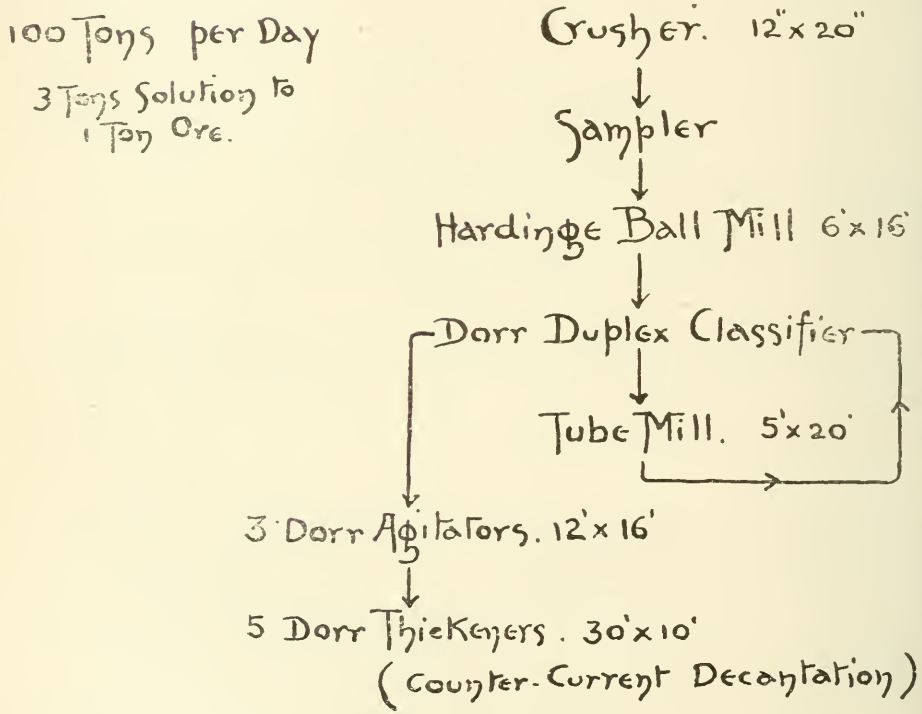
This property was operated throughout the year by a leasing company and a small mill was running regularly on ore stoped from the 200-foot level. The mill treated 11,607 tons producing 6,444 oz. of bullion valued at $125,000.

The Dome Mines Company, Ltd.

During the year 1914 development at the Dome Mines consisted of 115 feet of shaft sinking, attaining a depth of 551 feet, and 6,337 feet of cross cutting, drifting, raising, and boxholing combined. This work was almost entirely confined to the 3rd, 4th and 5th levels, while the ore was supplied mostly from the 2nd level from the open cut workings above. Diamond drill work also amounted to 5,247 feet.

The record of this mine for the past eighteen months is as follows:

Month	Tons Milled	Value Gold Produced	Value per ton
1913		$	$ c.
July	11,150	75,958	6 81
August	10,720	67,660	6 31
September	10,790	70,135	6 50
October	12,370	118,000	9 53
November	13,820	121,150	8 76
December	13,470	106,904	7 93
1914			
January	13,900	111,500	8 02
February	12,010	69,000	5 74
March	14,979	87,657	5 85
April	14,770	97,454	6 59
May	16,180	62,109	3 83
June	18,250	83,421	4 51



PROPOSED CYANIDE MILL, SCHUMACHER GOLD MINES, LIMITED.

Month	Tons Milled	Value Gold Produced	Value per ton
		$	$ c.
July	19,780	82,984	4 19
August	20,170	90,893	4 50
September	21,940	99,302	4 52
October	22,500	95,880	4 26
November	22,040	96,770	4 39
December	23,090	81,660	3 53
	291,929	$1,618,437	$5 54

The mill now treats 23,000 tons per month and is being gradually adjusted to efficiently treat 28,000 to 30,000 tons per month. The average number of men employed was:

Underground	126
Above ground	143
Construction	50

Dome Lake Mining and Milling Company.

At the Dome Lake Mine underground prospecting continued throughout the year. Towards the end of the year a small mill was started and treated 1,638 tons, producing 556 oz. of bullion valued at $8,832.32. After amalgamation the ore was run over concentrating tables and 21 tons of concentrates produced, valued at $1,482.

Porcupine Pet Gold Mine, Limited.

Some rich ore has been found on this property and the Nisson two-stamp mill has been treating from 15 to 18 tons of ore per day. Development is mostly on the 89-foot level. During the year the mill treated 1,433 tons, producing 580 oz. of bullion valued at $8,264.00.

Schumacher Gold Mines, Limited.

Prospecting on this property, although small in amount, has been fairly successful, and the decision has been reached to erect a cyanide mill during 1915. The method of treatment will be by continuous decantation as shown in the accompanying flow sheet.

Kirkland Lake.

Tough Oakes Gold Mines, Limited.

The only producing property in Kirkland Lake district during the year was the Tough Oakes. The following statements are taken from the annual report of the Tough Oakes Gold Mines, Limited.

Production.

Ore shipped to smelters:

Tons	Oz. Silver	Oz. Gold	Value per ton	Gross Value
212.79	6,325.12	3,448.47	$350 53	$74,590 38

Ore milled:

3,493.0	309.20	2,075.14	22 33	43,053 84

Development.

Following is a summary of the development work performed during the year:

Shafts	252 feet
Drifts	862 feet
Cross-cuts	220 feet
Raises	143 feet
Stopes	2,550 tons

Underground development was confined to veins Nos 2 and 3.

No. 2 Vein. The development work on this vein consisted of sinking the shaft to a depth of 322 feet, cutting station and ore pocket on the 300-foot level, extending the drifts on the three levels, and raising from the 1st and 2nd levels. Some cross-cutting was also done on the two upper levels.

No. 3 Vein. The shaft sunk on this vein continued in good ore to 71 feet, where the vein faulted. The shaft was continued to 124 feet and at 116 feet a station was cut, and cross-cut driven 20 feet south-east where the vein was again intersected. In the 180 feet of drifting on this level the ore developed gives an average value of $32.00 across a stoping width of 62 inches. Further surface trenching along the outcrop of this vein has exposed it for 830 feet.

No. 6 Vein. This vein lies 30 feet north of and parallel to No. 3, and was uncovered by trenching in June. It has been stripped for 1,160 feet, and is in the porphyry for its entire length.

For a length of 740 feet the sampling along the surface gave returns which indicate the value to be about $12.00 per ton for a width of 60 inches.

No. 7 Vein. This vein was found in June, and lies 325 feet north of No. 3. The overburden covering the vein is deep, and thus far it has only been stripped for a length of 245 feet. It is in the greywacké as far as it has been uncovered, and presents a strong outcrop. The quartz will average 18 inches in width with numerous stringers in both walls. The sampling done shows considerable high grade ore, and the results indicate that the value per ton will be about $15.00 for a width of 50 inches.

Power is transmitted 26 miles to the mine from the Charlton Hydro-Electric power plant at Charlton, Township of Dack. The line was completed in April. The power is transmitted at 33,000 volts and is stepped to 2,300 volts in the sub-station at the mine.

The Motor Compressor Plant situate near "A" shaft, consists of a two stage Imperial, Type 10, Rand Air Compressor, driven by a 250 h.p. G.M. Westinghouse motor. It delivers 1,670 cubic feet of free air per minute at normal speed.

The drill shop contains a No. 5 Ingersoll Leyner drill sharpening machine, together with coke furnaces for heating and tempering.

A motor driven, three stage, Centrifugal pump was installed at Gull Lake, and a four inch pipe line was laid to the tanks on the property. These tanks are each 50,000 gallons capacity, one being located above the camp buildings, and the other at the new mill.

The ore that was milled was treated in a five stamp mill using simple amalgamation, but as the tailings ran high in gold values they were impounded and will be re-treated later.

The new mill is located on high ground, 400 feet north of Vein No. 2. A brief description of the treatment is as follows:

Ore from the No. 2 and No. 3 shafts is delivered over an inclined trestle by a self dumping skip of 30 cubic feet capacity. The ore is weighed on track scales outside of the crusher station. The crusher station is located about 40 feet distant from the mill. The ore from the mine is crushed to 1¼ in. ring in two Blake Type Buchanan steel crushers, with intermediate screening. A 14 in. conveyor belt delivers the crushed ore through an inclined conveyor way into the fine grinding bin. This bin has a capacity of 200 tons, and from there the ore is delivered by a short conveyor belt to a 6 ft. Hardinge Ball Mill, crushing in solution. The product of the Hardinge Mill is re-ground in two 20 x 5 ft. tube mills, and operating in closed circuit with two Dorr Duplex classifiers. Amalgam plates are introduced in the tube mill circuit.

The overflow from the classifier, about 85 per cent. of which will pass through 200 mesh screen, is sufficiently ground for further treatment. This pulp flows from the fine grinding department into a 30 x 10 ft. Dorr thickener in the tank room. The spigot product of this thickener is elevated to three 16 x 10 Dorr Agitators, where it receives an agitation of 36 hours duration. The tests show that 80 per cent. of the values go into solution in the grinding process, and 20 per cent. in the agitator.

From the agitators the pulp is conveyed through a series of four 28 x 10 ft. Dorr thickeners operating on the Dorr continuous counter-current decantation system. The pulp is finally discharged to waste from the bottom of the last tank at about 40 per cent. moisture.

The pregnant solution overflowing from the 30 x 10 ft. thickeners is clarified through the vacuum filter leaves and precipitated by zinc fume used in conjunction with Merrill triangular frame presses.

A separate refinery building is equipped with amalgam retort, tilting furnace, and acid treatment equipment.

The mill is heated by steam, and there is complete machine shop, carpenter shop, lime bin, store-house and office.

The mill will treat 100 tons of ore per day, and it is expected to have it in operation about March 15th.

ORE RESERVES.

Vein.	Level	Tons.	Value.
			$
No. 2 Vein	100 feet	10,450	300,000
"	200 "	9,400	580,000
"	300 "	8,900	140,000
No. 3 Vein	116 "	10,000	320,000
Ore on Dumps		7,200	108,000
Tailings Impounded		5,200	52,000
		51,150	1,500,000

The combined average value of the 3,705.79 tons shipped and milled during the year was $41.18 per ton, the average of the high-grade ore being $350.53 per ton, and the recovered value of the milling ore, plus the tailings, being $22.33 per ton.

An interesting comparison showing the relative importance of the agricultural, lumbering and mining industries in the production of the revenue of the T. & N. O. Ry. is shown in the following table covering the last four years.

Industry.	1911	1912	1913	1914
	%	%	%	%
Agriculture	6.5	10	12	13
Lumbering	14.	17	21	26
Mining	48.5	44	48	48
Miscellaneous	31.	29	19	13
Totals	100.	100	100	100

Under the heading of miscellaneous is placed the percentage from freight for construction and also the through freight for the National Transcontinental Railway.

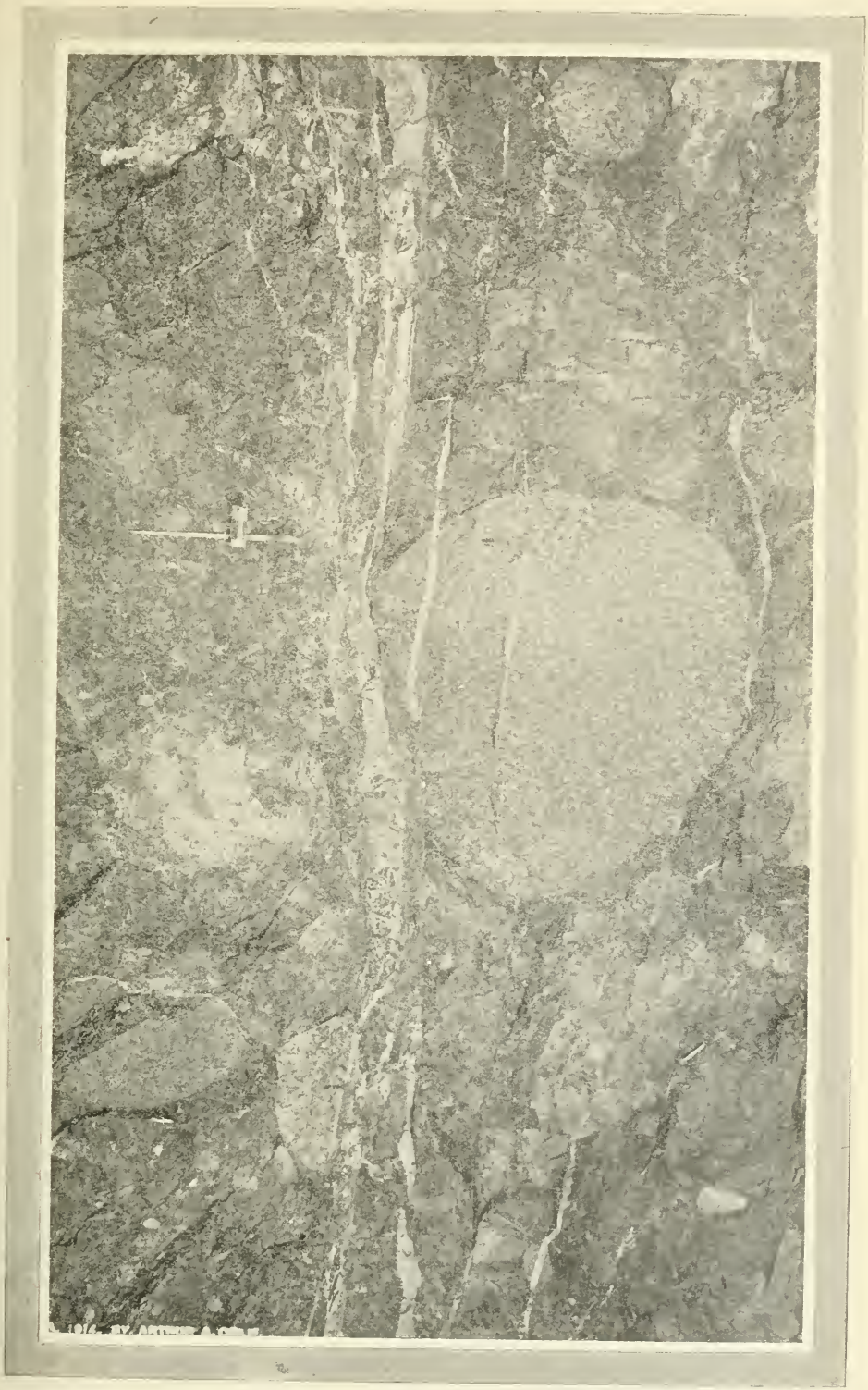
SILVER

The silver production of Cobalt which under normal conditions would likely have shown a decline from last year's figures has had the falling off emphasized by the war. The following table gives the value of the Cobalt production since the commencement of operations in the district.

TABLE No. I.

Year.	Value.
1904	$136,217 00
1905	1,485,570 00
1906	3,573,908 00
1907	6,155,391 00
1908	9,133,378 00
1909	12,456,301 00
1910	15,477,987 00
1911	15,953,895 00
1912	17,390,218 00
1913	16,555,001 00
1914	13,179,973 00
	$111,497,839 00

During the dislocation of business conditions on the declaration of war several of the mines ceased operations, but now all of these have restarted. Certain curtailments have naturally been effected, but otherwise the situation is almost normal. The curtailments of shipments of silver from London to the eastern markets of India and China, and the lack of sufficient transportation facilities to handle the Indian crops for export, has resulted in a lower price for silver than has been reached for many years. The price of silver in London and New York during the year 1914 is shown in the annexed table, which also gives comparative prices for the years 1912 and 1913.



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Nipissing Mine, Cobalt, Ont. Face of west drift on vein No. 98, 325′ or 4th level. Moyer shaft, granite pebble of Cobalt conglomerate, cut by silver vein.

MONTHLY AVERAGE PRICE OF SILVER.

Month	New York			London		
	1912	1913	1914	1912	1913	1914
January	56.260	62.938	57.572	25.887	28.983	26.553
February	59.043	61.642	57.506	27.190	28.357	26.573
March	58.375	57.870	58.067	26.875	26.669	26.788
April	59.207	59.490	58.519	27.284	27.416	26.958
May	60.880	60.361	58.175	28.038	27.825	26.704
June	61.290	58.990	56.471	28.215	27.199	25.948
July	60.654	58.721	54.678	27.919	27.074	25.219
August	61.606	59.293	54.344	28.375	27.335	25.970
September	63.078	60.640	53.290	29.088	27.986	24.260
October	63.471	60.793	50.654	29.299	28.083	23.199
November	62.792	58.995	49.082	29.012	27.263	22.703
December	63.365	57.760	49.375	29.320	26.720	22.900
Year	60.835	59.791	54.811	28.842	27.576	25.313

New York quotations—cents per ounce troy, fine silver.

London—pence per ounce, sterling silver, 0.925 fine.

The yearly average price of silver for the twelve years in which the camp has been in operation is shown in the following table:

YEARLY AVERAGE PRICE OF SILVER, 1903-1914.

Year.	New York.	London.
1903	52.221	24.750
1904	57.221	26.375
1905	60.352	27.812
1906	66.791	30.875
1907	65.327	30.188
1908	52.864	24.375
1909	51.503	23.687
1910	53.486	24.625
1911	53.304	24.563
1912	60.835	28.031
1913	59.791	27.563
1914	54.811	25.312

New York quotations—cents per ounce troy, fine silver.

London—pence per ounce, sterling silver, 0.925 fine.

A few cents rise in the price of silver would quickly bring out more bullion and ore and stimulate activity in the district. The Cobalt district continues to produce silver at the rate of about 2½ tons of pure silver for each working day.

TABLE II.

ORE SHIPMENTS FROM COBALT SILVER DISTRICT FOR CALENDAR YEAR 1914.

Mine.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Totals.
Alladin	24.00	27.50	.....	.....	.....	53.92	.....	.....	.....	.....	.....	.....	105.42
Bailey	20.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20.50
Beaver	.....	81.25	.....	31.22	64.01	33.69	32.25	32.33	.....	39.43	.....	77.89	392.07
Casey Cobalt	59.04	27.55	57.74	.....	61.85	61.34	88.62	8.05	85.30	19.89	84.91	54.01	608.30
Chambers Ferland	.....	.....	.....	29.34	43.98	31.89	30.02	32.94	38.28	42.99	58.62	.....	308.06
City of Cobalt	.....	38.88	40.35	37.87	78.57	42.62	42.88	41.29	86.42	86.83	.....	.....	495.71
Cobalt Townsite	235.95	161.28	153.98	178.47	285.37	188.01	210.05	120.79	251.20	165.63	.....	.....	1,950.73
Cobalt Comet	36.38	62.46	38.38	75.16	88.05	46.91	37.88	35.24	37.27	31.67	60.96	36.67	587.03
Cobalt Lake	95.86	125.06	96.15	96.81	96.44	125.50	123.65	32.06	95.08	32.40	.....	.....	919.01
Coniagas	80.49	70.07	128.19	150.88	42.95	155.17	64.46	130.70	127.62	82.50	121.29	62.94	1,217.26
Crown Reserve	88.53	119.91	79.55	136.63	97.57	92.78	100.23	54.67	57.82	49.14	115.29	74.88	1,067.00
Foster Cobalt	4.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.50
Hudson Bay	128.65	129.67	74.65	77.30	42.96	75.35	119.37	.....	.....	.....	.....	.....	647.95
Kerr Lake	107.78	86.61	34.41	67.39	44.82	42.05	33.96	31.59	33.41	58.87	54.65	32.88	628.42
La Rose	176.48	42.26	129.27	95.92	41.54	218.80	131.49	87.15	208.02	101.45	264.29	85.87	1,582.54
McKinley-Darragh	179.89	281.12	215.53	308.86	306.85	279.29	168.39	207.09	301.18	204.33	202.61	248.36	2,903.50
Mining Corporation of Canada.													
Cobalt Lake	.....	.....	.....	.....	.....	.....	.....	.....	.....	62.69	32.07	128.61	223.37
Townsite City	.....	.....	.....	.....	.....	.....	.....	.....	.....	86.49	246.24	200.67	533.40
Nipissing	157.55	135.21	57.89	116.22	155.30	376.12	130.26	.....	43.29	.....	.....	63.23	1,235.07
O'Brien	32.07	63.28	42.88	31.88	30.63	.....	62.24	33.00	31.80	65.15	63.53	66.75	523.21
Penn Canadian	51.76	25.98	52.32	42.29	59.05	20.95	24.96	60.56	.....	48.47	46.39	27.80	460.53
Peterson Lake	.....	.....	.....	34.10	57.74	.....	.....	.....	.....	30.68	.....	.....	122.52
Gould	.....	.....	30.65	.....	.....	20.00	.....	.....	.....	.....	.....	.....	50.65
Seneca	31.54	52.34	34.31	.....	.....	60.66	64.71	.....	63.72	.....	61.88	29.80	398.96
Right of Way	.....	.....	41.56	.....	31.49	32.44	.....	.....	78.67	.....	.....	.....	184.16
Silver Bar	.....	.....	.....	.....	.....	.....	.....	20.00	.....	.....	.....	.....	20.00
Temiskaming	.....	80.35	61.85	24.90	35.07	37.91	95.69	40.24	.....	.....	.....	41.75	417.56
Trethewey	46.29	43.79	42.31	47.93	52.04	53.39	61.80	62.59	24.42	80.17	54.53	44.02	613.28
Totals	1,557.26	1,654.57	1,411.77	1,583.17	1,716.28	2,048.79	1,622.91	1,030.29	1,563.50	1,288.78	1,467.26	1,276.13	18,220.71

TABLE

ORE SHIPMENTS FROM THE COBALT

(In tons

Mine.	1904	1905	1906	1907	1908
1. Badger					
2. Bailey			30.00		88.80
3. Beaver					
4. Buffalo		200.80	992.80	1,241.54	536.90
5. Casey Cobalt					10.00
6. Chambers Ferland					223.89
7. City of Cobalt				50.61	761.04
8. Cobalt Lake					225.97
9. Cobalt Townsite				143.22	177.71
10. Cobalt Comet (Drummond)	.50	32.15	274.70	104.13	1,161.38
11. Colonial			15.00	40.38	
12. Coniagas		30.60	422.02	2,447.37	610.25
13. Crown Reserve					657.35
14. Foster		83.85	117.00	312.13	191.20
15. Green Meehan			37.03	98.39	
16. Hargrave		28.45			
17. Hudson Bay				149.53	1,094.23
18. Imperial Cobalt				14.61	
19. Kerr Lake		54.95	158.35	319.76	660.24
20. King Edward		19.00		31.12	338.19
21. La Rose	60.05	507.86	854.61	2,815.45	4,843.17
22. Lawson		14.61		61.12	
23. Lost and Found					
24. Lumsden					
25. McKinley Darragh	20.00	447.09	80.45	742.42	1,808.39
26. Mining Corporation of Canada					
27. Nancy Helen				30.10	201.32
28. Nipissing	57.00	486.02	2,125.08	2,538.26	3,571.96
29. North Cobalt					
30. Nova Scotia			43.95	272.21	237.95
31. O'Brien		26.32	114.18	1,491.61	3,459.51
32. Penn Canadian				77.33	187.99
33. Peterson Lake (Leases)					
Gould					
Little Nipissing					40.67
Nova Scotia					
Seneca Superior					
34. Provincial					75.84
35. Princess				3.93	
36. Red Rock				45.71	
37. Right of Way			46.25	129.37	750.04
38. Rochester					
39. Silver Bar					.58
40. Silver Cliff					160.44
41. Silver Leaf		9.00		46.36	197.03
42. Silver Queen		44.73	130.94	478.57	885.70
43. Temiskaming				204.32	795.20
44. Temiskaming Cobalt			20.47	67.98	
45. Trethewey	21.00	218.58	198.48	833.58	1,408.69
46. University		16.00	55.28	60.23	
47. Victoria					.47
48. Violet		16.00	20.00		
49. Waldman					
50. Wyandoh					
Totals	158.55	2,336.01	5,836.59	14,851.34	25,362.10

III.

DISTRICT FOR THE YEARS 1904-1914.

of 2,000 lb.)

1909	1910	1911	1912	1913	1914	Totals.	
.....	.....	27.10	.....	.....	.....	27.10	1
36.85	.....	20.00	41.57	150.35	20.50	388.07	2
51.38	140.06	790.81	402.97	292.21	392.07	2,069.50	3
648.86	1,185.77	1,275.19	1,251.64	66.13	.....	7,399.63	4
8.50	48.40	277.74	214.34	401.54	608.30	1,568.82	5
517.88	885.92	622.85	501.29	223.78	308.06	3,283.67	6
566.82	329.40	281.30	230.00	105.14	495.71	2,820.02	7
95.47	296.80	2,111.32	1,085.22	1,196.33	919.01	5,930.12	8
27.35	310.99	703.51	1,944.77	2,762.54	1,950.73	8,020.82	9
1,225.47	2,194.41	714.83	458.85	610.06	587.03	7,363.51	10
.....	178.60	114.10	86.48	21.56	.....	456.12	11
803.93	1,261.46	1,813.89	2,119.87	1,620.40	1,217.26	12,350.05	12
3,167.52	2,184.25	977.32	561.65	791.15	1,067.00	10,036.24	13
113.90	.....	.....	.....	.....	4.50	822.58	14
.....	.....	102.98	.....	12.96	.....	251.36	15
.....	343.68	102.44	17.35	.....	.....	491.92	16
743.64	260.33	898.88	694.55	609.14	647.95	5,098.25	17
.....	.....	.....	.....	.....	.....	14.61	18
1,173.42	5,088.78	1,292.58	788.10	933.35	628.42	11,097.95	19
146.58	134.12	20.00	.....	87.21	.....	776.22	20
6,757.21	5,131.53	3,581.54	3,511.40	3,275.14	1,582.54	33,020.50	21
.....	.....	.....	.....	.....	.....	75.73	22
.....	.....	.....	65.20	8.80	.....	74.00	23
.....	.....	.....	.....	20.00	.....	20.00	24
1,056.49	2,393.39	3,238.64	2,673.40	2,895.66	2,903.50	18,229.43	25
.....	.....	.....	.....	.....	756.77	756.77	26
116.32	.....	.....	.....	.....	.....	347.74	27
6,470.52	6,833.81	2,952.20	1,869.27	1,950.22	1,235.07	30,089.41	28
6.87	.....	3.00	.....	.....	.....	9.87	29
224.79	.....	.....	.....	.....	.....	778.90	30
1,419.11	608.57	628.44	711.43	703.43	523.21	9,685.81	31
339.01	285.62	22.40	126.35	332.18	460.53	1,831.41	32
.....	.....	.....	.....	.....	122.52	122.52	33
.....	.....	.....	.....	9.00	50.65	59.65	
39.62	313.76	28.45	.....	.....	.....	422.50	
121.15	.....	.....	.....	.....	.....	121.15	
.....	.....	.....	432.97	457.93	398.96	1,289.86	
.....	52.05	100.54	22.22	.....	.....	250.65	34
.....	.....	.....	.....	.....	.....	3.93	35
.....	.....	.....	.....	.....	.....	45.71	36
1,608.99	981.41	666.06	243.24	146.12	184.16	4,755.64	37
.....	28.30	.....	.....	.....	.....	28.30	38
.....	.....	2.72	.....	20.00	20.00	43.30	39
149.06	156.84	92.30	.....	48.05	.....	606.69	40
.....	.....	.....	.....	.....	.....	252.39	41
316.64	.....	.....	31.25	201.98	105.42	2,195.23	42
852.14	1,119.12	855.60	967.31	405.26	417.56	5,617.51	43
.....	.....	.....	.....	.....	.....	88.45	44
1,134.50	536.64	602.98	579.10	587.54	613.28	6,734.37	45
.....	.....	.....	.....	.....	.....	231.51	46
.....	.....	.....	.....	.....	.....	.47	47
.....	.....	.....	.....	.....	.....	36.00	48
.....	38.81	.....	.....	.....	.....	38.81	49
.....	24.15	.....	.....	.....	.....	24.15	50
29,942.99	33,976.97	24,921.71	21,631.79	20,916.16	18,220.71	198,154.92	

TABLE IV.

TABLE SHOWING SHIPMENTS FROM ELK LAKE AND GOWGANDA FOR THE YEARS 1909-1914.

(In tons of 2,000 lb.)

Mine.	1909	1910	1911	1912	1913	1914	Total.
Elk Lake.							
Beaver Auxiliary	.....	.....	.....	.....	.....	1.26	1.26
Downey	.....	.....	.....	.....	.....	9.60	9.60
Hitchcock	.....	.....	4.00	.....	.....	.....	4.00
Lucky Godfrey	.....	17.00	.....	.....	.....	.....	17.00
Moose Horn	.....	3.00	.....	.....	.....	.....	3.00
Gowganda.							
Bartlett	2.00	.....	6.75	.....	.....	.....	8.75
Bonsall	.....	6.78	.....	.....	.....	.....	6.78
Boyd Gordon	.....	30.00	1.25	.....	.....	.....	31.25
Burke Remey	.....	2.00	.....	.....	.....	.....	2.00
Calcite Lake	.....	.....	.....	8.50	.....	.....	8.50
Canadian Gowganda	.....	.....	.....	8.00	.....	.....	8.00
Everett	.....	8.35	.....	.....	.....	.....	8.35
Mann	.....	.....	.....	16.00	20.00	20.00	56.00
Millerett	.....	346.30	128.00	188.00	.....	.....	662.30
Miller Lake O'Brien	.....	31.00	116.50	112.60	172.90	118.80	551.80
Powerful	.....	1.00	.....	.....	.....	.....	1.00
Reeves Dobie	.....	61.00	5.00	.....	.....	.....	66.00
Welsh	.....	1.25	.....	.....	.....	.....	1.25
Totals	2.00	506.68	262.50	333.10	192.90	149.66	1,446.84

TABLE V.

STATEMENT SHOWING ORE SHIPMENTS FROM SOUTH LORRAIN.

(In tons of 2,000 lb.)

Mine.	1908	1909	1910	1911	1912	1913	1914	Total.
Wettlaufer	.....	111.50	226.64	496.00	478.00	120.00	49.46	1,482.60
Keeley	43.25	1.09	.....	21.26	.....	.....	.....	65.06
Bellellen	.....	.....	.....	13.25	.....	.....	.....	13.25
Totals	43.25	112.59	226.64	530.51	478.00	120.00	49.46	1,560 91

TABLE VI.

STATEMENT SHOWING SHIPMENTS FROM COBALT DISTRICT, INCLUDING GOWGANDA, ELK LAKE AND SOUTH LORRAIN.

(In tons of 2,000 lb.)

Years.	Cobalt.	Gowganda.	Elk Lake.	S. Lorrain.	Totals.
1904	158.55	.....	.....	.....	158.55
1905	2,336.01	.....	.....	.....	2,336.01
1906	5,836.59	.....	.....	.....	5,836.59
1907	14,851.34	.....	.....	.....	14,851.34
1908	25,362.10	.....	.....	43.25	25,405.35
1909	29,942.99	2.00	.....	112.59	30,057.58
1910	33,976.97	486.68	20.00	226.64	34,710.29
1911	24,921.71	267.00	4.00	530.51	25,733.22
1912	21,631.79	333.10	.....	478.00	22,442.89
1913	20,916.16	192.90	.....	120.00	21.229.06
1914	18,220.71	138.80	10.86	49.46	18,419.83
Totals	198,154.92	1,420.48	34.86	1,560.45	201,170.71

TABLE VII.

BULLION SHIPMENTS FROM THE COBALT DISTRICT, CALENDAR YEAR 1914.

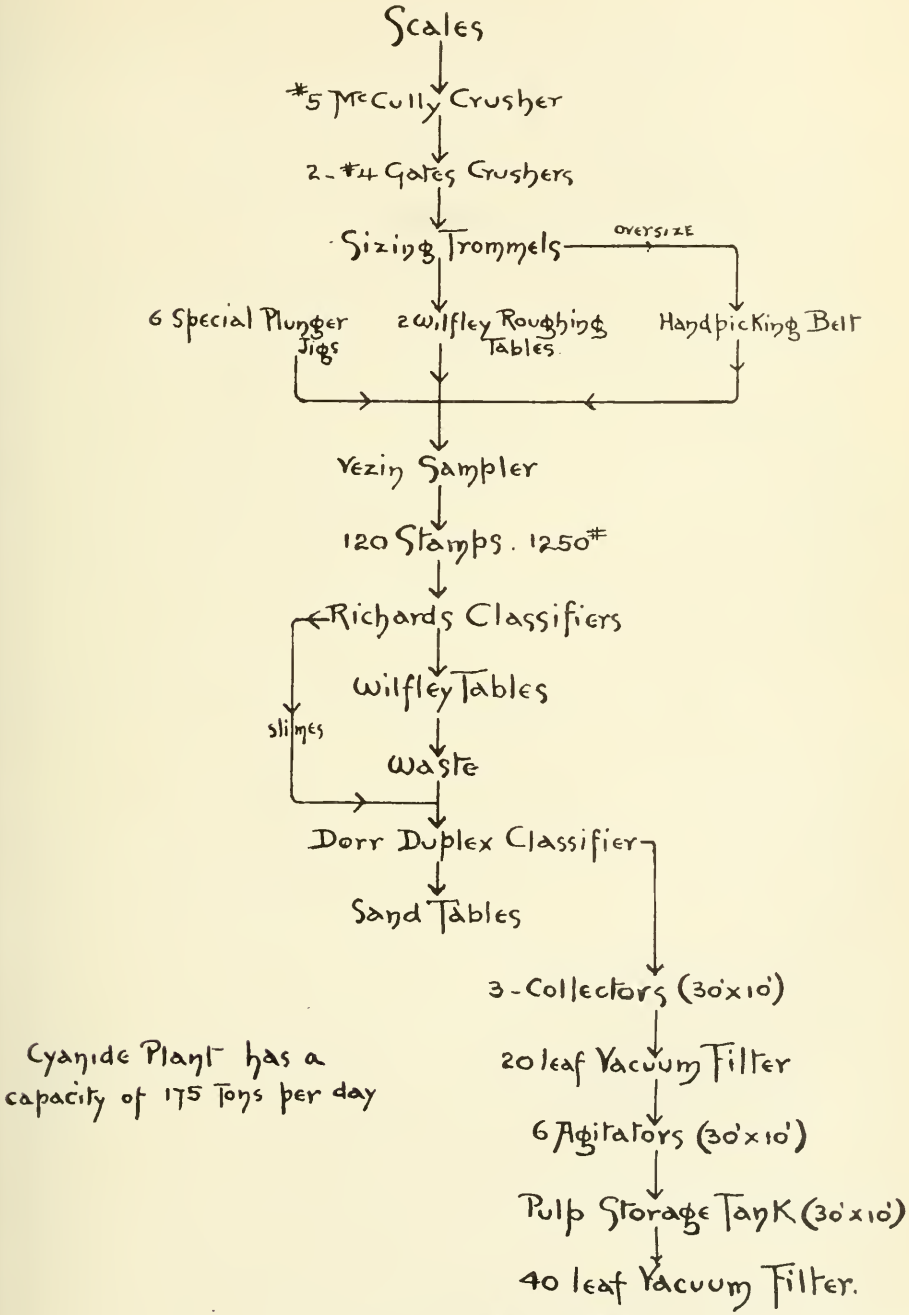
Mine.	Fine.	Value.
	Oz.	$
Bailey	1,353.93	785.27
Beaver	9,849.00	5,004.09
Buffalo	912,250.00	500,013.35
Casey Cobalt	2,566.64	1,343.72
City of Cobalt	27,341.64	15,523.75
Cobalt Comet	1,597.54	923.65
Cobalt Townsite	36,538.86	19,580.17
Crown Reserve	626,374.00	343,822.52
Dominion Reduction	726,397.85	405,885.50
Foster Cobalt	2,157.13	1,017.62
Hargraves	794.00	414.81
Kerr Lake	407,238.53	183,970.15
La Rose	55,365.48	29.066.87
McKinley-Darragh	17,470.00	10,016.55
Nipissing and Customs	6,299,677.75	3,469,526.13
O'Brien	452,822.00	243,933.91
Penn Canadian	16,454.94	8,839.69
Temiskaming	6,163.70	3,553.20
Townsite—City	17,640.35	8,465.83
Trethewey	4,576.04	2,409.86
Total	9,624,629.38	5,254,096.64

DIVIDENDS PAID BY COBALT MINES TO 31ST DECEMBER, 1914.

Mining Company.	Percentage paid during 1914.	Amount of Dividends and Bonuses Paid during 1914.	Total Percentage Paid to 31st Dec., 1914.	Total Amount of Dividends and Bonuses Paid to 31st Dec., 1914.
	Per cent.	$ c.	Per cent.	$ c
1. Beaver	3	60,000 00	23.5	470,000 00
2. Buffalo	28	280,000 00	282	2,787,000 00
3. Caribou Cobalt (Drummond)	7.5	75,000 00	10	100,000 00
4. Casey Cobalt		93,750 00		203,249 33
5. City of Cobalt			23	139,321 42
6. Cobalt Central			4	192,845 00
7. Cobalt Lake	5	150,000 00	15.5	465,000 00
8. Cobalt Silver Queen			21	315,000 00
9. Cobalt Townsite	20	199,953 34	97.5	966,726 31
10. Coniagas	33	1,320,000 00	181	7,240,000 00
11. Crown Reserve	24	424,515 36	337	5,960,894 18
12. Foster			5	45,774 00
13. Hudson Bay (Tem. and Hudson Bay)	900	69,849 00	25,000	1,940,250 00
14. Kerr Lake (Holding Co.)	20	600,000 00	184	5,520,000 00
15. La Rose (Holding Co.)	12	899,176 18	69	* 1,204,862 72 4,974,998 05
16. McKinley-Darragh	21	472,015 32	193	4,337,028 22
17. Mining Corporation of Canada	12.5	259,375 00	12.5	259,375 00
18. Nipissing Mines Co. (Holding Co.).	22.5	1,350,000 00	204	† 400,000 00 12,240,000 00
19. Right of Way Mining Co.			65	324,643 93
Right of Way Mines	1	16,850 00	13	219,110 00
20. Peterson Lake	5.25	126,095 55	5.25	126,095 55
21. Seneca Superior	70	335,218 80	135	645,993 40
22. Temiskaming			56	1,384,156 25
23. Trethewey	5	50,000 00	108	1,061,998 50
24. Wettlaufer			45	637,465 50
25. Private Corporations				3,250,000 00
		6,781,798 55		57,411,787 36

*Profits paid to owners previous to May 31st, 1908.

†Paid to Syndicate in 1905-6.



COBALT REDUCTION COMPANY'S MILL.

MILLING IN COBALT DURING 1914.

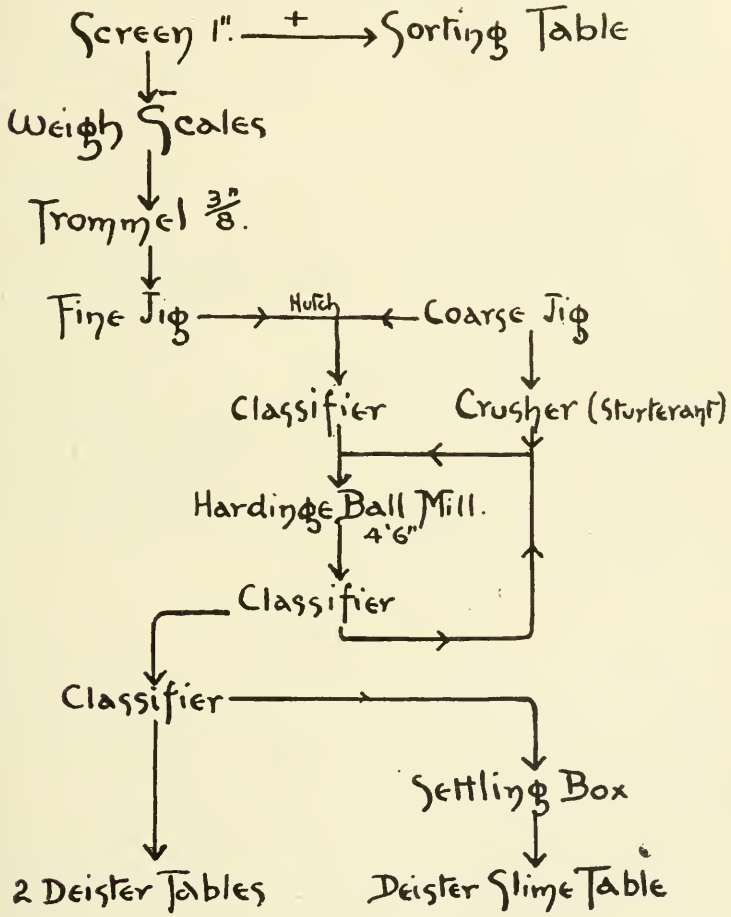
Mills and Mines.	Tons Milled.	Concentrates.			Concentration. Ratio.
		Jigs. Tons.	Tables. Tons.	Totals. Tons.	
1. Beaver	27,069	121.2	227.8	349.0	78-1
2. Buffalo	55,254	.....	.....	832.0	66-1
3. Casey Cobalt	24,236	21.3	534.4	555.7	43-1
4. Cobalt Lake	53,753	272.7	824.6	1,097.3	49-1
5. Cobalt Reduction	92,021	.....	.....	2,717.4	34-1
6. Colonial—					
Right of Way	7,470	.....	.....	146.0	51-1
7. Coniagas	54,646	124.0	625.0	749.0	73-1
8. Hudson Bay	11,304	96.2	261.2	357.4	31-1
9. McKinley-Darragh	66,765	161.0	2,344.0	2,505.0	27-1
10. Northern Customs—					
La Rose	52,273	.....	1,233.1	1,233.1	42-1
Chambers Ferland	10,625	.....	311.0	311.0	34-1
Cobalt Alladin	1,120	.....	38.6	38.6	29-1
Cariboo Cobalt	1,042	.....	37.4	37.4	28-1
11. O'Brien	51,892	97.0	189.0	286.0	181-1
12. Penn Canadian	25,478	98.3	278.8	377.1	68-1
13. Seneca Superior	2,526	40.9	67.4	108.4	23-1
14. Temiskaming	18,779	82.8	292.8	375.6	50-1
15. Trethewey	35,215	53.2	553.4	606.6	58-1
Total	591,468			12,682.6	47-1

Cyanide Mills.	Tons Milled.	Oz. Bullion Produced.
16. Dominion Reduction—		
Comet (Drummond)	20,160.2	
Crown Reserve	31,503.0	
Drummond Fraction	3,674.0	
Kerr Lake	17,601.5	1,586,783
17. Nipissing, Low Grade	79,125.0	2,261,023
	152,063.7	3,847,806

Total tons milled by Water Concentrating Mills	591,468
Total tons milled by Cyanide Mills	132,062
Total tons milled, 1914	743,531
Total tons milled, 1913	664,845
Total tons milled, 1912	455,517
Total tons milled, 1911	381,871
Total tons milled, 1910	305,513
Total tons milled, 1909	126,421
Total tons milled, 1908	49,424
Grand Total	2,727,122

At the *Buffalo Mine* the cyanide plant, which forms part of the Low Grade Mill, treated 9,105 tons of slimes, producing 67,429 oz.

The *Cobalt Reduction Mill*, which now forms part of the Mining Corporation of Canada, Ltd., has been extended by the addition of a cyanide plant for the treatment of slimes, doing away with the use of vanners.



SENECA SUPERIOR MILL.

At the *Dominion Reduction Mill* besides the silver bullion there were produced 1,764 tons of amalgamation residues, which were shipped to the smelters.

In the *O'Brien Mill* the jig concentrates contained 139,022 oz. and the table concentrates 278,045 oz. The tailings from the concentrating tables amounting to 51.606 tons were cyanided and produced 448.720 fine oz. silver.

High Grade Mills.

The *Buffalo High Grade Mill* treats the concentrates from the Low Grade Mill as well at metallics, and hand picked raw ore from the mine. The record for 1914 was:

Tonnage Treated.	
Raw ore	14 tons
Concentrates and metallics	792 tons
Bullion produced	930,551 fine oz.

The residues from this mill have been stored for a possible further treatment for the nickel, cobalt and other valuable constituents. They have already been re-treated and the mercury extracted that was taken up in the amalgamation process used for the extraction of the silver.

The *Nipissing High Grade Mill* treated a total of 1,885 tons, made up of 920 tons Nipissing ore containing 2,118.346 oz., and 965 tons customs ore containing 2,335.834 oz.

The Nipissing Company shipped 1,238 tons of residues from their High Grade Mill, most of which was shipped to Birmingham, England, the value being in the cobalt contents.

*Mercury Recovery.

In the amalgamation of Cobalt high grade silver ores and concentrates in strong cyanide solution, as practised in that district, considerable mercury is contained in the residues from the amalgamation process. This mercury exists in the residues as mercuric sulphide in most part, only from five to ten per cent. of the total mercury content being in the metallic state.

Attempts to eliminate this loss in the amalgamation process were tried, but these all resulted in a low extraction of the silver content of the ore, and attention was then directed toward the recovery of the mercury from the residues.

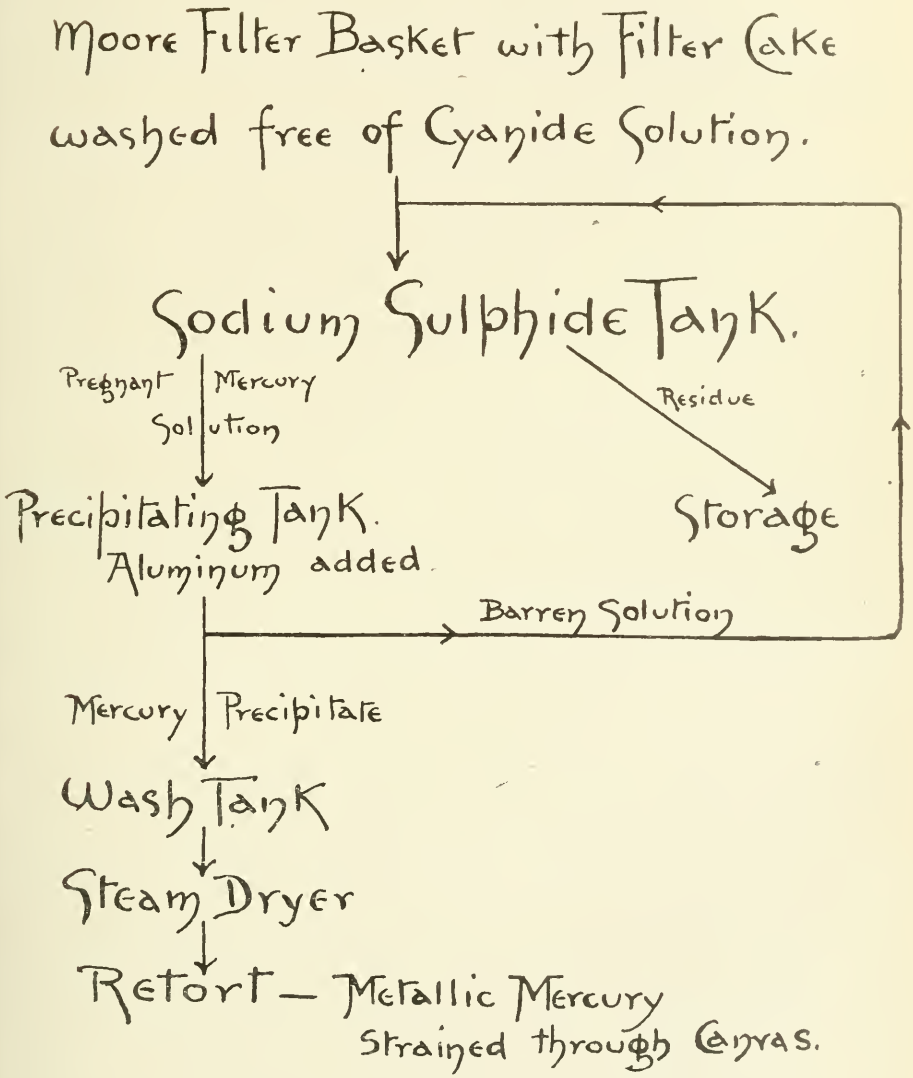
The process developed at the Buffalo Mines for this purpose consists, in short, in leaching out the mercuric sulphide with a caustic, alkaline sulphide solution, and precipitating the mercury from solution with metallic aluminum. The equations for solution (1) and precipitation (2) are:

(1) $HgS + Na_2S = HgS.\ Na_2S$

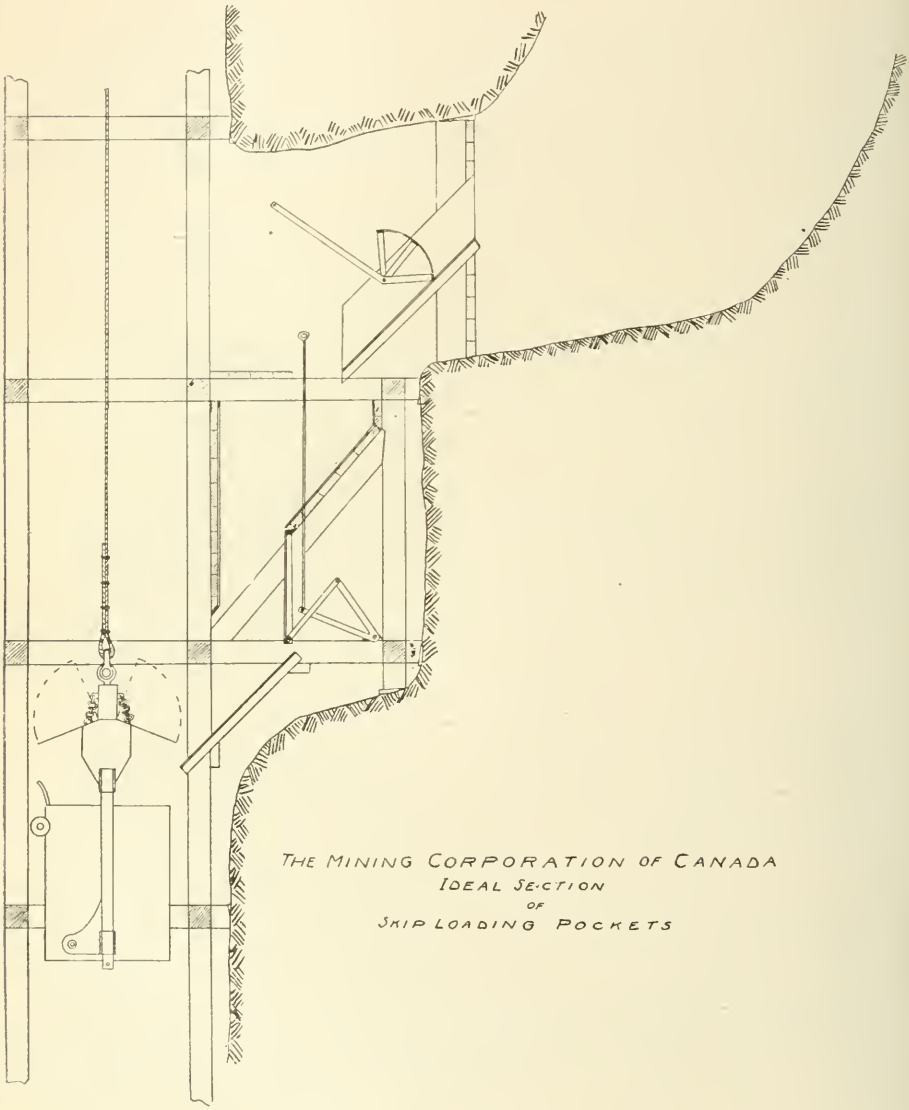
(2) $3HgS.\ Na_2S + 8NaOH + 2Al = 3Hg + 6Na_2S + 2Na\ Al\ O_2 + 4H_2O$

Small scale experiments showed that a complete extraction of the mercuric sulphide could be made by an eight to ten minute treatment of the residues with the alkaline sulphide solution.

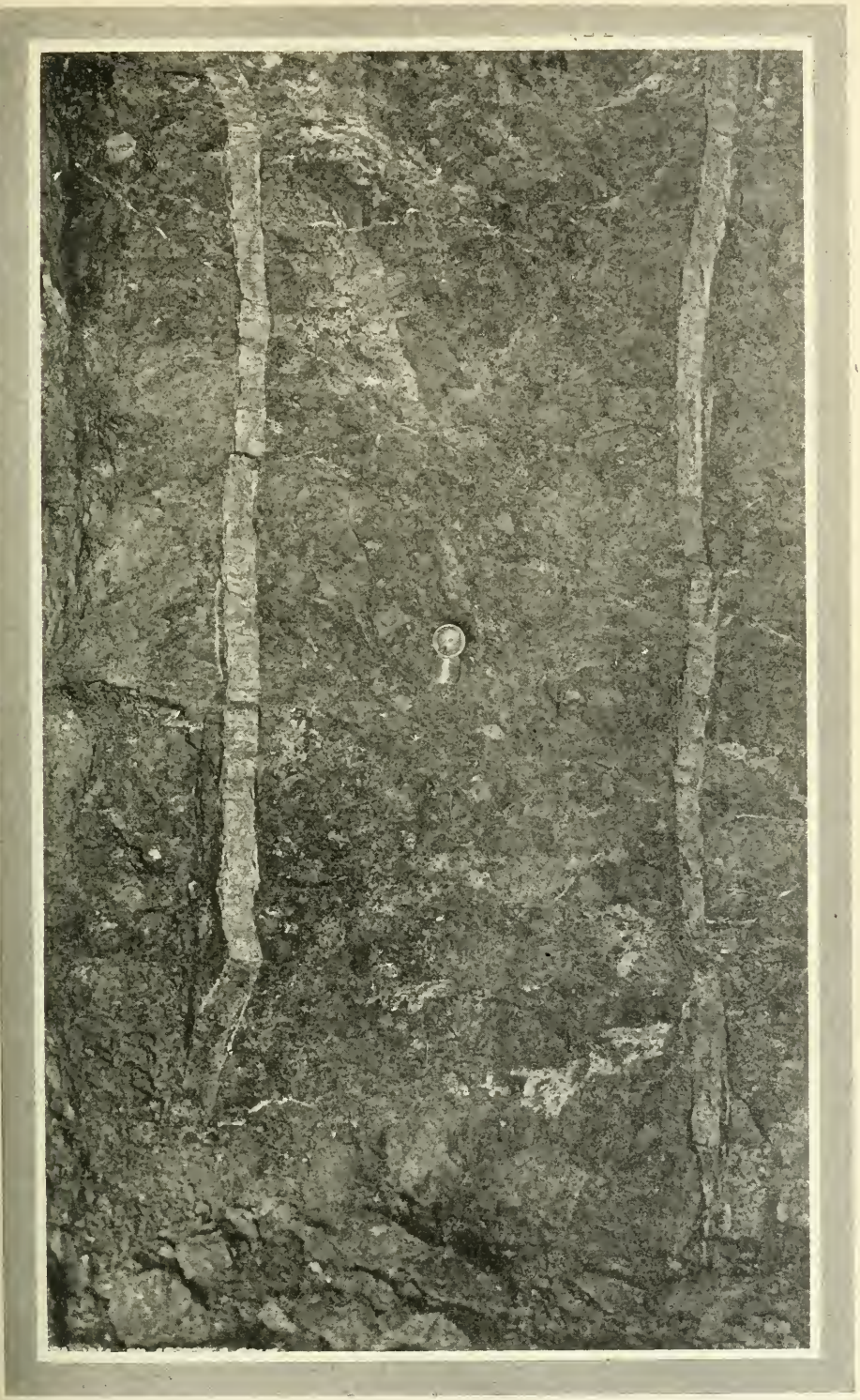
*E. B. Thornhill, Transactions, Canadian Mining Institute, 1915.



MERCURY EXTRACTION PLANT AT THE BUFFALO HIGH GRADE MILL.



IDEAL SECTION OF SKIP LOADING POCKETS. THE MINING CORPORATION OF CANADA, LIMITED.



Copyright, Canada, 1914, by Arthur A. Cole.

Vein 27. 200′ level. City of Cobalt Mine. Mining Corporation of Canada, Limited.

Advantage was taken of this fact in the commercial plant, by applying the solvent to the residue on the filter leaf, as no agitation of any sort was required.

The operation of the constructed plant is essentially as follows:

The residue in the pregnant cyanide solution is caked on a Moore filter leaf of the usual construction and the cake washed free of silver solution with water. The basket is then lowered into the sodium sulphide solution and this solution drawn through the cake until the effluent shows only a trace of mercury. Usually one ton of solution per ton of residue is sufficient. This mercuric sulphide solution is pumped to a precipitating tank and the mercury precipitated by adding granular aluminum to the agitated solution. Agitation is then stopped, the precipitate allowed to settle, and the clear solution decanted. The precipitate is then run to a small wash tank by sweeping it out through a hole in the bottom, by taking a raking mechanism similar to a Dorr thickener, having pieces of old rubber belting riveted to the bottoms of the rakes. The precipitate is then washed with water by decantation and drawn off into a steam drying pan. After drying, the fluid mercury is separated from the powdered metallic by raking the latter off with a hoe. The fluid is strained through canvas and is ready to return to the circuit. The powdered material containing approximately seventy-five per cent. mercury is then returned and the mercury condensed in the usual manner.

From May, 1914, to December 31st, 1914, 36,075 pounds of mercury have been recovered at a cost of approximately 13c. per pound for labor and chemicals.

The mercury produced by this process is of exceptional purity. Ledoux & Co. report one-quarter oz. of silver, it being the only impurity in determinable quantity.

This mercury is at present being used by the leading electrical concern in the United States for its mercury convertors, without purification.

An amalgamation of considerable importance was completed early in the year between the Cobalt Townsite Mining Company, the City of Cobalt Mining Company, the Townsite Extension Mining Company and the Cobalt Lake Mining Company. The Cobalt Reduction Mill was also included.

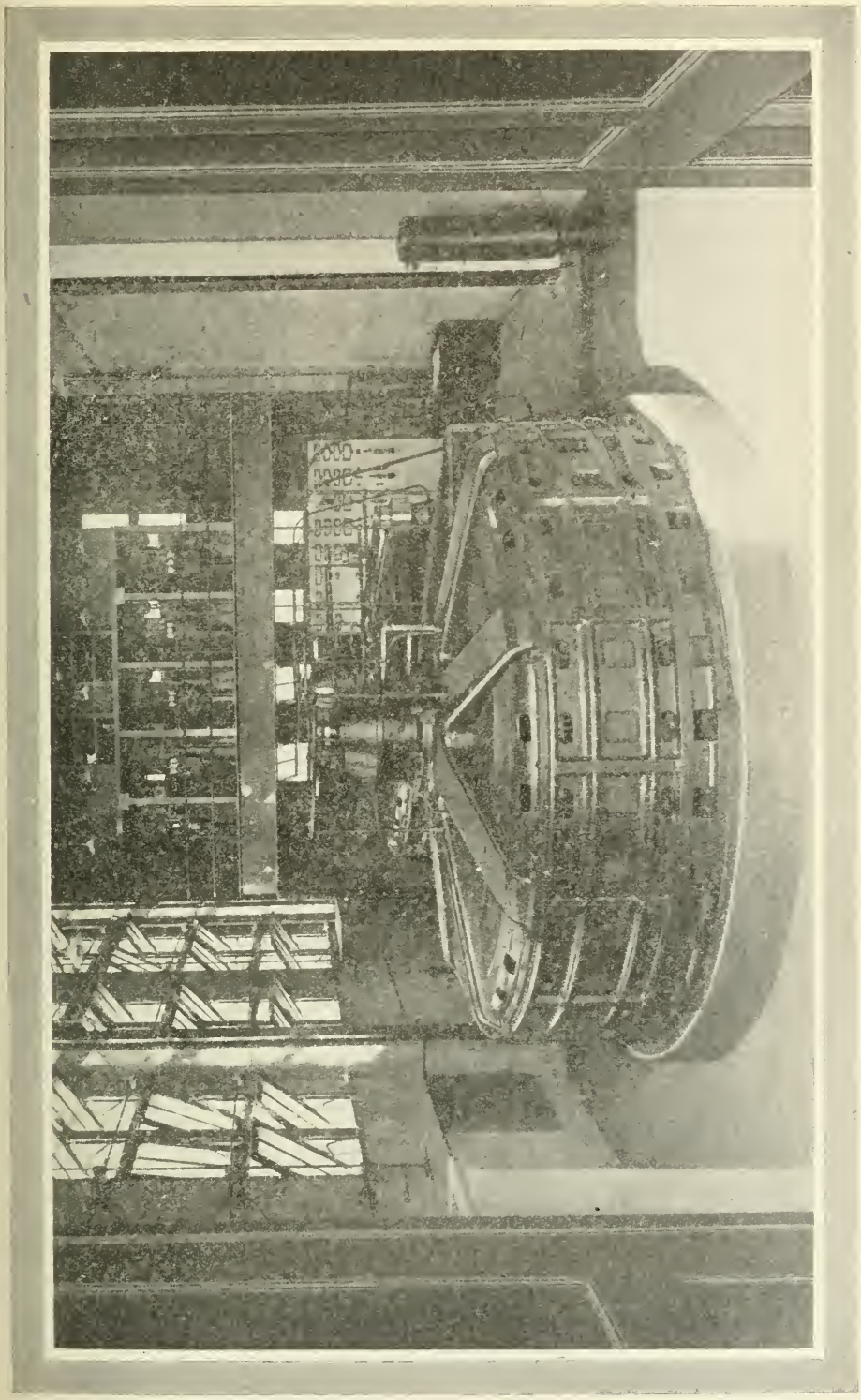
A new three compartment vertical shaft has been sunk on the Townsite property close to the mill to which is now trammed all ore from both the Townsite and the City of Cobalt mines. The shaft is fitted with two ton self dumping skips, which can be run in balance. A new head frame was erected and the coarse crushing department of the mill entirely remodelled. A cyanide treatment plant has also been added to the mill handling all slimes, as is shown in the accompanying flow sheet.

At *Kerr Lake* pumping operations were continued for the purpose of clearing out a portion of the mud lying on the old lake bottom. Progress at this work was found to be slower than anticipated.

The outlet of *Cobalt Lake* has been lowered so that the water level in the lake has fallen over six feet. Arrangements are in progress so that the pumping out of the lake may commence early in the summer of 1915.

In the outlying districts there has not been much mining activity. The *Casey Mine* in Casey Township, north of New Liskeard, was a steady producer during the year, but most of the work accomplished was development work.

The only other steady producer was the *Miller Lake-O'Brien* at Gowganda. The ten stamp mill of this company milled 2,348 tons producing 45.95 tons of concentrates. This mine now has a power plant situated at the outlet of Gow-



Fountain Falls Generating Station, Interior View, showing Switch board and Both Galleries. Northern Ontario Light and Power Company, Limited.

Matabitchouan Power House and Penstock Operators' Residences on the right. Northern Ontario Light and Power Company, Limited.

ganda Lake on the Montreal River, in which is installed two turbines of 400 h.p. each, and a 900 h.p. generator. At the mine a 20 drill compressor has been installed, which is driven by a 340 h.p. motor.

Power.

Cobalt.

During the early part of May, 1914, the Fountain Falls station of the Northern Ontario Light & Power Co., Ltd., was put in commission. This plant is located on the Montreal River 1½ miles below Ragged Chutes.

A concrete dam 400 ft. long diverts the water into a short canal, where it is passed through two 1,500 h.p. I. P. Morris Co., vertical water wheels, operating under a tentative head of 30 ft. These wheels are direct connected to two 3-phase, 60 cycle, 150 r.p.m., 11,000 volt, 1,250 k.v.a. Swedish General Electric Co's. alternating current generators.

Power for the excitation of these generators is supplied by two 52 k.w., 220 volt, 1,200 r.p.m., motor driven generators.

Power for these exciter sets is being supplied through four 40 k.v.a. oil insulated, self cooled, single phase, 60 cycle transformers, which step the voltage down from 11,000 to 220 volts.

Speed control on the generators is obtained by Pelton, type "G," oil pressure Governors, shaft driven from the generator shaft, and direct connected to the turbine gates. Each governor is equipped with a tachometer and a motor for switchboard control.

The intake gates are motor driven, and are operated from a controller mounted on the forebay platform.

The generating station is built of reinforced concrete throughout, and is illuminated entirely with Tungsten lamps.

This station operates in parallel at all times with the Hound Chute and Matabitchouan stations belonging to the same company.

Freight Rates.

From Cobalt, North Cobalt, Haileybury and New Liskeard to North Bay:—

Silver Ore, Carloads, Minimum 40,000 Lbs., T. & N. O. Ry.

Below $49.00 per ton	10c. per 100 lbs.
Above $49.00 per ton, billed to Canadian points	14c. per 100 lbs.
Above $49.00 per ton, billed to outside points	16c. per 100 lbs.

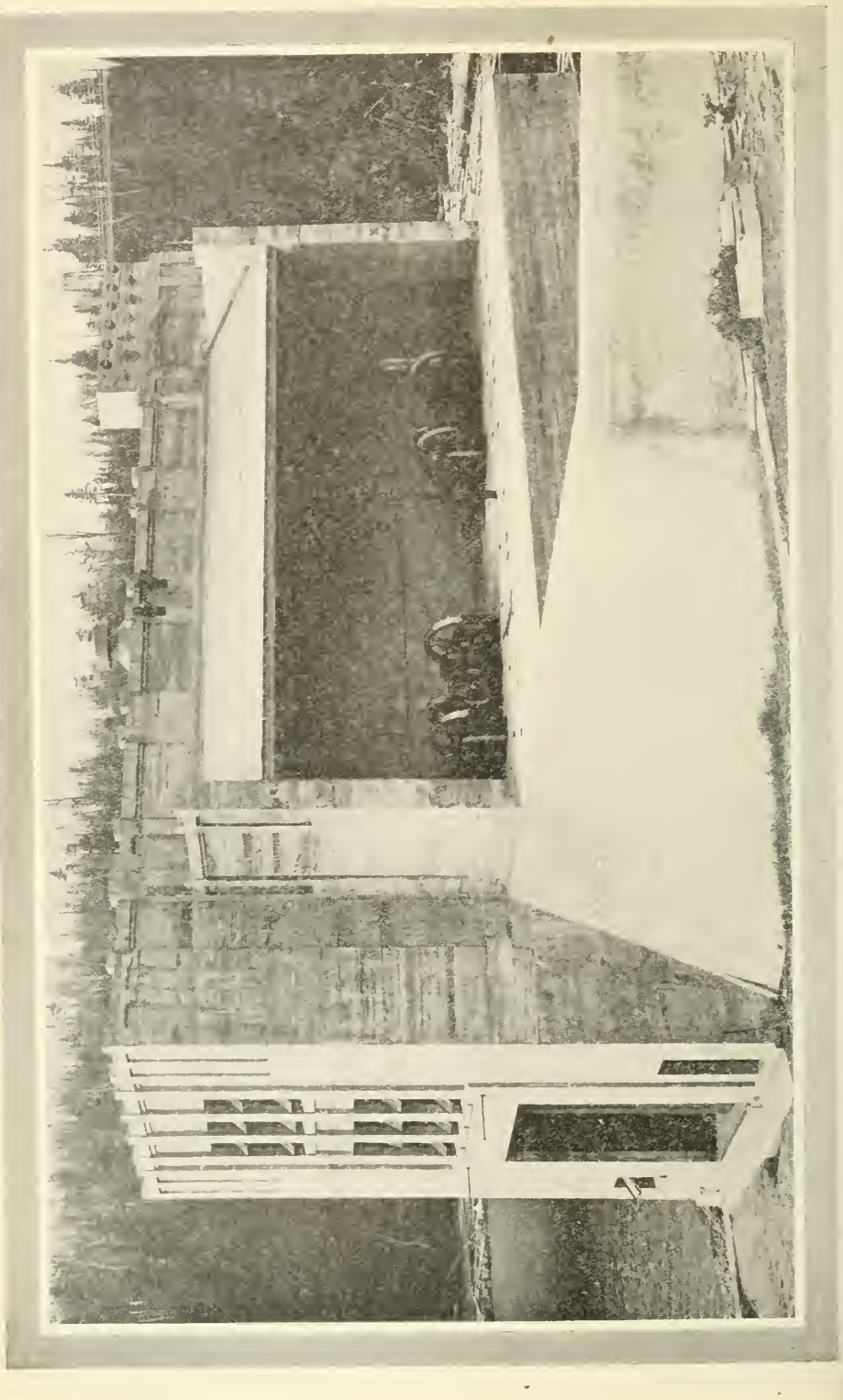
From Elk Lake to North Bay.

Below $49.00 per ton	11c. per 100 lbs.
Above $49.00 per ton, billed to Canadian points	15c. per 100 lbs.
Above $49.00 per ton, billed to outside points	17c. per 100 lbs.

Silver Ore, Carloads, Minimum 40,000 lbs.

Effective February 1st, 1915.

From North Bay, Ont., to:—	Rates in cents per 100 lbs. A	B	C	D
Kingston, Ont.	15	17	23	29
Marmora, Ont.	18	20	26	33
Thorold, Ont.	14	16	21	26
Welland, Ont.	15	17	22	28



Fountain Falls Generating Station. Forebay and Motor Operated Intake Gates. Northern Ontario Light and Power Company, Limited.

Effective February 15th, 1915.

Cincinnati, Ohio	20.0	23.1	30.5	37.8
Denver, Col.	41.0	47.3	*56.4	64.1
Detroit, Mich.	18.9	21.0	27.3	34.1
East Chicago, Ind.	23.1	27.3	35.7	44.6
Flint, Mich.	21.0	25.2	33.1	41.0
Omaha, Neb.	31.0	37.2	45.5	54.1
International, Utah	61.0	70.3	82.4	95.4

*Shown in C. P. R. tariff E. 2568 as 55.4.

Application of Rates.

Group A.—Rates apply when valuation is under $50.00 per ton.
Group B.—Rates apply when valuation is over $50 and under $100 net ton.
Group C.—Rates apply when valuation is over $100 and under $500 net ton.
Group D.—Rates apply when valuation is $500 and over per net ton.

When shipments are made to Eastern United States points, a through rate is not quoted, but cars are billed to the frontier, to Buffalo, Black Rock or Suspension Bridge, N.Y. From there new rates and ratings apply.

Silver Ore, Carloads, Minimum 40,000 lbs.

	Rates in cents per 100 lbs.			
From North Bay to—	A	B	C	D
Buffalo, Black Rock or Suspension Bridge, N.Y., U.S.A.	13.1	15.8	20.5	25.7

Application of Rates.

Group divisions A, B, C and D apply on same valuation as in previous table.

Silver Ore, Carloads, Minimum 50,000 lbs.

From Buffalo, Black Rock and Suspension Bridge, N.Y., to—	Rates in cents per 100 lbs.			
	A	B	C	D
Bergen Junction, N.Y.	13.8	16.9	23.6	29.8
Carnegie, Pa.	10.5	12.1	18.5	26.8
Chrome, N.J.	13.8	16.9	23.6	29.8
Newark, N.J.	13.8	16.9	23.6	29.8
New York, N.Y.	13.8	16.9	23.6	29.8
Perth Amboy, N.J.	13.8	16.9	23.6	29.8

Application of Rates.

Group A.—Rates apply when valuation is under $100 per net ton.
Group B.—Rates apply when valuation is over $100 and does not exceed $800 per net ton.
Group C.—Rates apply when valuation is over $800 and does not exceed $2,000 per net ton.
Group D.—Rates apply when valuation is above $2,000 per net ton.

Note.—Shipments are billed at the highest rates (Column D), and charges are collected at destination accordingly. On presentation of paid expense bill and signed assay certificate from the smelter, showing the value of the ore to be less than the rating of Group D, charges are adjusted in accordance with the valuation to the above rates. The smelter returns to the mine or owner before deducting transportation charges are the values used in determining the freight rates.

ORE RATES—IN CENTS PER 100 POUNDS FROM COBALT, ONTARIO.

To	—	Under $50	Under $100	Under $500	$500 and over
Niagara Frontier	1914	22.5	31	35.5	40.5
	2-15-15	23.1	31.8	36.5	41.7
Cincinnati, Ohio	1914	29	38	45	52
	2-15-15	30	39.1	46.5	53.8
Detroit, Mich	1914	28	36	42	48.5
	2-15-15	28.9	37	43.3	50.1
Denver, Colo	1914	50	62	70	78.5
	2-15-15	51	63.3	71.4	80.1
E. Chicago, Ind	1914	32	42	50	58.5
	2-15-15	33.1	43.3	51.7	60.6
International, Utah	1914	70	85	97	109.75
	2-15-15	71	86.3	98.4	111.4
Flint, Mich	1914	30	40	47.5	55
	2-15-15	31	41.2	49.1	57
Omaha, Neb	1914	40	52	60	68.5
	2-15-15	41	53.2	61.5	70.1
Carnegie, Pa	1914	32.5	41	47	52
	2-15-15	33.6	42.3	47	53.8
Perth Amboy, N.J	1914	35.5	44	48.5	56.5
	2-23-15	36.9	45.6	50.3	58.6

Smelting.

The market for Cobalt silver ores during 1914 was practically the same as during the preceding year. Three companies took most of the output, being the

Coniagas Reduction Company, Thorold, Ont.
Deloro Mining and Reduction Company, Limited, Deloro, Ont.
American Smelting and Refining Company, Denver, Col.

CONIAGAS REDUCTION COMPANY.

No alterations have been made in the purchasing schedule of the company during the year. The only addition to the plant to be reported is the erection of extra storage bins for by-products for which there is very little or no sale since the outbreak of the war. The output of the smelter up to the 31st December, 1914, is as follows:

Year	Ore treated. Tons	Silver, Fine. Oz.	Cobalt, Oxide. Tons.	Nickel, Oxide. Tons.	White Arsenic. Tons.
1908	266.8	360,683	5.5	1.5	13.5
1909	1,116.9	1,659,604	.9	.....	100.0
1910	2,017.25	3,485,243	53.8	13.2	557.7
1911	2,821.50	5,770,271	60.5	17.3	766.1
1912	2,288.77	4,824,632	129.0	50.7	636.7
1913	2,509.8	4,977,012	250.6	115.6	319.4
1914	1,968.78	3,865,546	171.9	124.9	399.2
Totals	12,989.80	24,942,991	672.2	323.2	2,792.6

Deloro Mining and Reduction Co. Ltd.

The ore purchasing schedule of this company remains the same as that in force in 1913. Additions and enlargements to the plant give a present balanced capacity of 300 to 400 tons of silver-cobalt ore per month. A spur line connecting the works with Marmora Station, C. O. Railway was built, and has been in operation since September, 1913. This spur line is operated by the smelting company with its own locomotive, all ore, fuel and supplies thus being delivered in original cars at the works.

A "metals" department has recently been added to the oxide plant and cobalt and nickel metals are now turned out in the forms required by the market. Notwithstanding the serious falling off on the sales of by-products occasioned by the war, this company has continued to purchase without interruption throughout the year.

PRODUCTION OF DELORO SMELTER, 1908, TO 31ST DECEMBER, 1914.

Year.	Ore Treated.	Silver, Fine.	Cobalt and Mixed Oxides.	Refined Arsenic.
	Tons.	Oz.	Tons.	Tons.
Previous to 1913	11,065	20,339,860	500	3,275
During 1913	2,920	6,350,500	190	893
During 1914	3,612	5,207,000	300	1,038
Totals	17,597	31,897,360	990	5,206

American Smelting and Refining Company.

Several American smelting companies received shipments of Cobalt silver ore during the year, but the majority went to the works of the American Smelting and Refining Co., either at Perth Amboy, New Jersey, or Denver, Colo.

The only change in the smelting schedule was that while the low grade ores going to Denver formerly paid $9.00 per ton smelting charge with an arsenic penalty, this has now been changed to $10.00 smelting charge with no arsenic penalty.

NICKEL

Nickel ore shipments from the Alexo Mine continued regularly till August when a close down took place until the nickel situation readjusted itself to new conditions. Shipments were resumed in November and are now continuing regularly. The ore is sold outright to the Mond Nickel Company and is treated with their own ores in their smelter at Coniston, Ontario. A statement of shipments from the Alexo Mine for the calendar year 1914 is given herewith.

NICKEL ORE SHIPMENTS OVER THE T. & N. O. RY.,

CALENDAR YEAR 1914.

Month.	Tons (2,000 lb.)
January	744.00
February	622.45
March	928.00
April	582.90
May	892.25
June	961.60
July	653.75
August	564.10
September	.....
October	.....
November	311.30
December	878.00
Total	7,138.35

COPPER

In January a trial shipment of 66 tons of copper ore was made to an American smelter by the Dane Mining Co. from its property near Dane, mileage 160. As development did not prove satisfactory operations were discontinued.

MINING ROYALTIES AT COBALT

As there appears to be some misconception as well as lack of appreciation of the reasons for the royalties payable by certain mines at Cobalt, the following explanatory notes may be of interest.

When the Temiskaming & Northern Ontario (Ontario's Government Rail way) was started, the Government placed the management under a Commission. The railway was granted a right-of-way and also certain townsites along the line of location. Later on the Government also granted to the railway the minerals underlying the right-of-way and under the townsites except where these had already been disposed of. In the vicinity of Cobalt these mining rights proved very valuable both in the case of the right-of-way itself and also under the townsite.

Instead of undertaking mining operations itself the Railway Commission divided its mining lands into convenient lots or parcels and leased them to companies or individuals, who acquired them by public tender. In this way four leases have worked and made returns to the railway.

1. The Cobalt Townsite Mining Company.
2. The City of Cobalt Mining Company.
3. The Right of Way Mining Company.
4. The Nancy Helen Mines, Limited.

The company acquiring a lease paid a cash bonus to begin with and thereafter a royalty on shipments. Originally the royalty was based on the value of the ore at the collar of the shaft, but this was later changed to a percentage of the net profits.

The policy of the Railway Commission has been to assist the lessees from time to time by a gradual reduction of royalties as the resources of the mines were exhausted. This has worked out in a satisfactory manner both to lessor and lessee.

Each lease started out by paying 25 per cent. royalty on the value of all shipments at the collar of the shaft, with the one exception of the Townsite Company, which was supposed to pay 50 per cent. royalty on all ore assaying over $1.000 per ton, and 25 per cent. on ore assaying lower than that amount. This was early considered unsatisfactory and a uniform royalty of 25 per cent. on gross value was adopted. The next reduction was to 25 per cent. net, or to be more explicit, 25 per cent. on profits calculated as in the Supplementary Revenue Act (now called The Mining Tax Act).

The further successive reductions have been to 20 per cent., 17 per cent., 15 per cent., 12½ per cent., 10 per cent. and 7½ per cent. On July 1st, 1914, all leases from the Railway Commission were reduced to 7½ per cent., and the agreement now stands that this will be the royalty till 1st September, 1915, on which date all royalties will be reduced to 5 per cent. on profits.

By the above leasing system the lessee only pays a royalty on ore recovered. The fairness of this system, particularly to the lessee may be illustrated by the following example.

To the south of the Town of Cobalt there are two lots of approximately 40 acres each, the Silver Queen and the Cobalt Townsite properties. In 1906, when Cobalt properties were coming prominently before the public, the Silver Queen property was part of the holdings of the Hudson Bay Mining Company, while the Cobalt Townsite property belonged to the T. & N. O. Ry. These two properties lying side by side each had silver-bearing veins exposed on the surface and similar geological conditions. The ore exposed on the Silver Queen was richer

than that on the Townsite, but the area of silver-bearing formation was more restricted on the Silver Queen property, so that a comparison of these two properties is legitimate.

The Silver Queen property was sold to the Silver Queen Mining Company for $810,000 cash. This meant that this amount of capital had to be expended to acquire the property before any ore could be taken out.

In the case of the Cobalt Townsite property, instead of selling it for a large cash payment, which could easily have been obtained, the T. & N. O. Ry. Commission leased the property to the Cobalt Townsite Mining Company on a long time lease (999 years) exacting a payment of $50,000 cash bonus and a royalty on all ore extracted.

In the former case the purchaser had to pay the whole $810,000 cash before there was any chance of a return, while in the latter case only 1/16th of this amount had to be paid to begin with, and the further payments were only made as the ore extracted was sold. These royalties to date have amounted to $279,482.72.

The Railway Commission expects to receive further royalties from this property in the future, but the operating company only pays these on receipts from sale of ores. It does not have to assume the responsibility of a large cash payment at the commencement of operations and consequently its capital is left available for development work and the fairness of the arrangement to both parties concerned is obvious.

The royalties received by the T. & N. O. Ry. Commission from its mining leases to the 31st October, 1914, are as follows:

Cobalt Townsite	$279,482 72
City of Cobalt	100,791 13
Right of Way	272,109 17
Nancy Helen	6,126 60
Mining Corporation of Canada	8,405 60
Total	$666,915 22

A number of other mines at Cobalt pay royalty directly to the Government on certain special arrangements, but these have nothing to do with the T. & N. O. Ry. Commission. Thus, when the Crown Reserve mine was sold by the Government, a clause was attached to the deed of sale whereby the Crown Reserve Company paid a certain amount of cash for the property and in addition pays a royalty of 10 per cent. on all ores shipped, the valuation being the gross value at the collar of the shaft. A similar clause was attached to all sales of lots in the Gillies Limit.

The mines paying royalty directly to the Ontario Government are shown in the following statement:

ROYALTIES PAID THE ONTARIO GOVERNMENT TO THE 31ST OCTOBER, 1914.

Mine.	Amount Paid to 31st Oct. 1913.	Amount Paid Oct. 31st, 1913, to Oct. 31st, 1914.	Total Amount to 31st Oct., 1914.
	$ c.	$ c.	$ c.
O'Brien	695,067 85	5,898 22	700,966 07
Crown Reserve	705,641 69	66,241 75	771,883 44
Hudson Bay	324,261 21	2,545 14	326,806 35
Chambers Ferland	26,259 64	.....	26,259 64
Hargraves	1,200 00	.....	1,200 00
Waldman	777 48	.....	777 48
Wyandoh	1,421 72	.....	1,421 72
Provincial	6,735 14	.....	6,735 14
Grand total	.....	.....	1,836,049 84

The above royalties are paid on the following bases:

O'Brien Mine.

Fifteen per cent. of the net profits as ascertained on the basis of the Mining Tax Act, (R.S.O. 1914, ch. 26, sec. 5). The royalty at first was at the rate of 25 per cent. of the value of the ore at the pit's mouth (less surface costs) but was reduced in 1913.

Crown Reserve Mining Co.

Ten per cent. of the value of the ore at the pit's mouth.

Hudson Bay Mines.

Ten per cent. of the net profits as ascertained on the basis of the Mining Tax Act. The rate charged at first was 15 per cent. on the net smelter returns, but was reduced in 1913.

Chambers Ferland Mining Co.

At first 25 per cent. of the value of the ore at the pit's mouth, as in the case of O'Brien Mine. Afterwards reduced to 25 per cent. of the net profits on the basis of the Mining Tax Act; and in 1912 the royalty was abolished, reserving to the Crown the right, in case of rich ore being found in quantity, to impose the royalty up to the extent of 25 per cent. on the net profits as above.

Hargraves Silver Mine.

Same as Chambers Ferland.

Waldman Silver Cobalt Mining Co.

Ten per cent. of the value of the ore at the pit's mouth.

Wyandoh Mining Company.

Ten per cent. of the value of the ore at the pit's mouth.

Cobalt Provincial Mines.

Ten per cent. of the value of the ore at the pit's mouth.

The Peterson Lake Mining Company has divided its property up into 10 acre lots and has leased a number of these lots to independent mining companies on a royalty basis. Thus the Seneca Superior and the Gould are working leases from the Peterson Lake Company paying the owning company 25 per cent. on all ore shipped, calculated on the gross smelter returns. In these cases the royalty is paid to the Peterson Lake Company and none is paid to the Government. Only Bonanza veins can pay on such a basis.

The Ontario Government collects a revenue from mining companies throughout the Province through the operation of the Mining Tax Act. This is a tax, however, and not a royalty, and is calculated on the basis of 3 per cent. on all profits above $10,000 annually.

RECORD OF DEEP WELLS ALONG THE LINE OF THE T. & N. O. RY.

The T. & N. O. Ry. Commission has had certain deep wells drilled along the line of the railway for the purpose of obtaining water supply for engines and for stations.

In the clay country, north of Cobalt, good wells are exceptional. The clay is practically impervious and it is difficult to obtain an abundant supply of water, except by drilling into the underlying rock. The wells at Englehart were drilled to supply the railway and the town with good drinking water, that in the Blanche River being unfit for this purpose. The Commission instructed that wells be drilled at other points in order to provide a supply of drinking water to employees located at the different stations.

The logs or records of a number of these wells are published herewith. For the purpose of comparative records the statement is also given of a number of borings put down by private enterprise in the vicinity of New Liskeard:

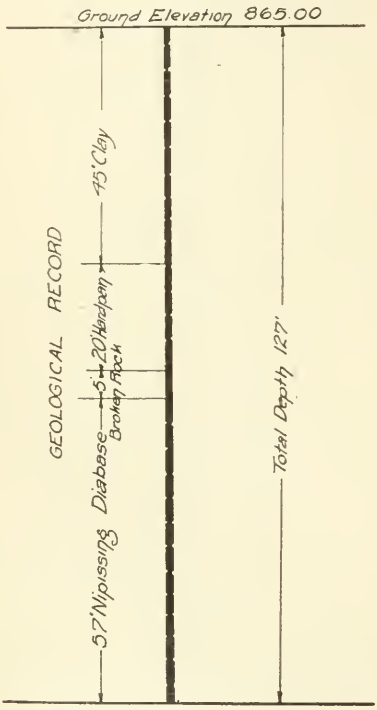
BORINGS BY ARTHUR CAMPBELL IN THE VICINITY OF NEW LISKEARD.

Name of Owner.	Location of Well.	Material Passed Through.
P. J. Whallen	S. ½ of N. ½ Lot 1, Con. 5, Harris	Gravel 18′, limestone 132′ water 40′ from surface.
A. J. Whalen	S. ½ Lot 1, Con. 5, Harris	Gravel 9′, limestone 66′, water 10′ from surface.
W. Bone	E. pt. of S. ½ Lot 12, Con. 3, Dymond	60′ clay, 15′ sand, 65′ sandstone, water 35′ from surface.
S. McChessney	S. ½ Lot 1, Con. 3, Harris	61′ clay, 67′ sandstone, water 50′ from surface.
J. Gray	N. ½ Lot 12, Con. 3, Dymond	67′ clay, limestone 83′, water 53′ from surface.
A. Larkin	N. ½ of N. ½ Lot 1, Con. 5, Harris	9′ gravel, sand 141′, water 50′ from surface.
B. Huggins	N. ½ Lot 2, Con. 3, Harris	8′ gravel, sandstone 142′, water 33′ from surface.
A. Waugh	S. ½ Lot 12, Con. 4, Dymond	8′ clay, limestone 40′, sandstone 87′, water 16′ from surface.
W. R. Montgomery	N. ½ Lot 10, Con. 3, Dymond	67′ clay, 98′ sandstone, water 51′ from surface.
S. Willows	S. part Lots 11 & 12, Con. 3, Dymond	120′ clay and water on gravel 22′ from surface.
W. E. David	N. part Lot 11, Con. 2, Dymond	117′ clay, limestone 17′, water 16′ from surface.
Balls School House	N. ½ Lot 3, Con. 2, Harris	170′ grey limestone, water 38′ from surface.
A. J. Kennedy	S. ½ Lot 9, Con. 6, Dymond	104′ clay, 7′ gravel, 7′ limestone, water 16′ from surface.
J. Gibbons	S. ½ of S. ½ Lot 9, Con. 4, Dymond	90′ clay, blue limestone 60′, water 19′ from surface.
Joe Lachine	N. ½ Lot 10, Con. 6, Dymond	32′ clay, sandstone 146′, water 48′ from surface.
John Miller	N. ½ Lot 9, Con. 5, Dymond	100′ clay, 60′ grey limestone, water 53′ from surface.
P. Gannon	N. ½ Lot 11, Con. 5, Dymond	20′ clay, 60′ yellow stone.
D. D. Reynolds	S. ½ Lot 11, Con. 6, Dymond	10′ gravel, 120′ grey limestone, water 25′ from surface.
W. Leishman	N. ½ Lot 4, Con. 4, Dymond	214′ clay, 20′ quicksand, gravel 8′, flowing well, heavy flow.

T.& N.O.R

RECORD OF DEEP WELLS AT NORTH COBALT

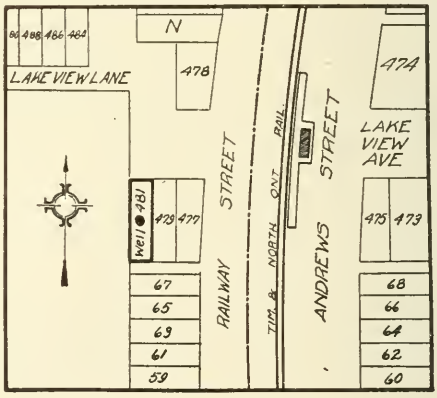
LOG OF WELL



LOCATION Lot # 481

DATE BEGAN DRILLING Oct. 1914
WELL COMPLETED Oct. 1914.

NOTE:-
No water obtained - Casing withdrawn



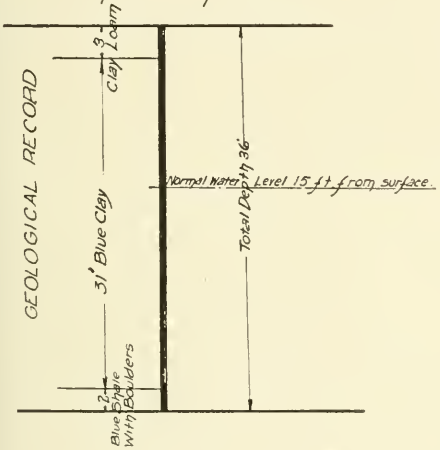
Office of Chief Engineer
North Bay, Ont. Dec. 14th 1914.

NIPISSING CENTRAL RLY

RECORD OF DEEP WELLS AT NORTH COBALT

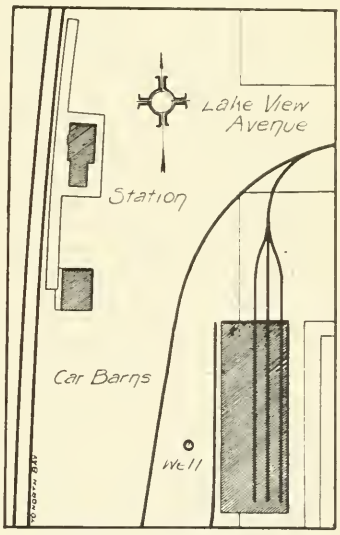
LOG OF WELL

Ground Elevation 865 00



LOCATION On west side of Car Barn

DATE BEGAN Drilling Dec 1913
WELL COMPLETED Dec 1913



Office of Chief Engineer
North Bay Ont Dec 14th 1914

T&N O RLY
RECORD OF DEEP WELLS
AT NEW LISKEARD

LOG OF WELL

Ground Elevation 642.00

85 Clay

Normal Water Level 58 from Surface

5' Hardpan

140' Gravel

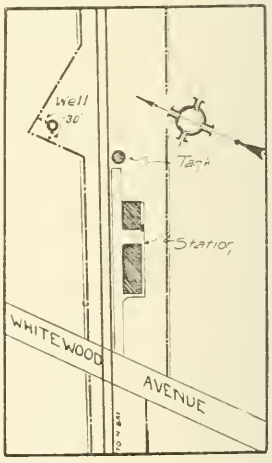
Depth of Well 240'

GEOLOGICAL REPORT

LOCATION In triangular Lot opposite Station

DATE BEGAN DRILLING Oct 13th 1914
WELL COMPLETED Nov 14th 1914

DELIVERY 55 gals per minute

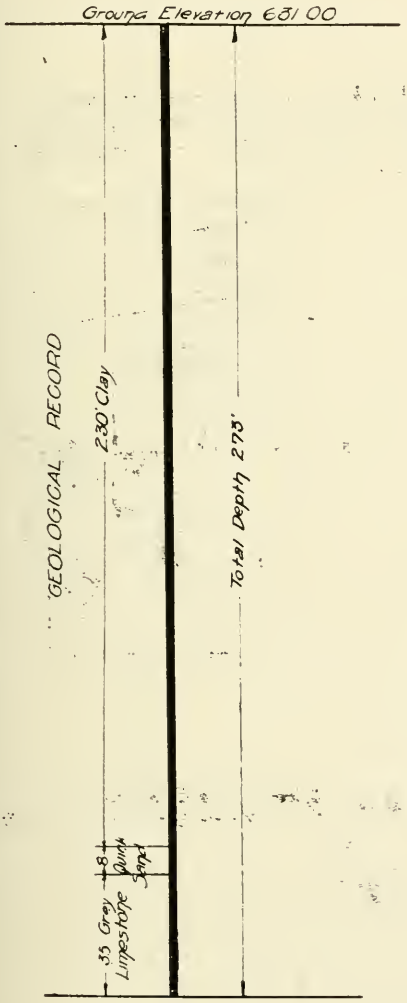


Office of Chief Engineer
North Bay Ont Dec 14th 1914

T. & N. O. R.

RECORD OF DEEP WELLS AT UNO PARK

LOG OF WELL

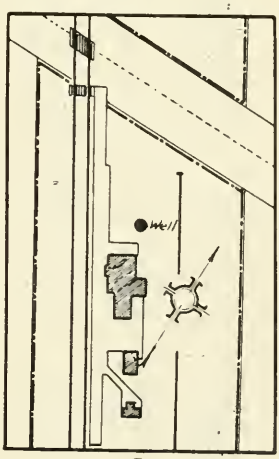


LOCATION - Uno Park

DATE BEGAN DRILLING June 1914
WELL COMPLETED - June 1914

BACTERIOLOGICAL REPORT -
Water does not show infection with harmful Bacteria

NOTE -
This is an Artesian well with a flow of 6 gal per minute.



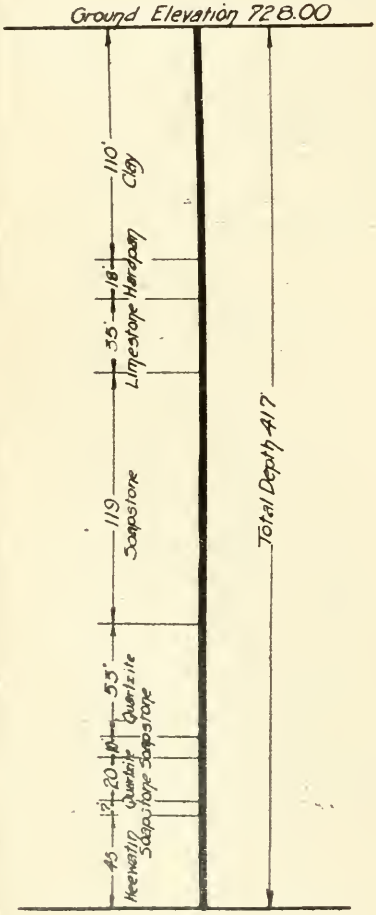
Office of Chief Engineer
North Bay Ont Dec 14th 1914

T&N O RLY.

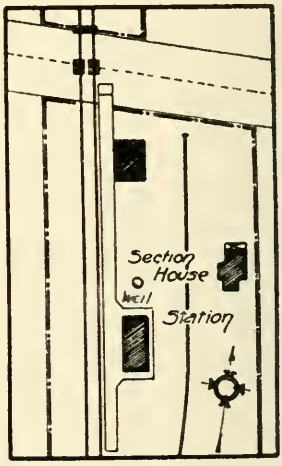
RECORD OF DEEP WELLS AT HEASLIP

LOG OF WELL

Ground Elevation 728.00



LOCATION:- Well 20' north of Station
DATE BEGAN DRILLING Nov 9th 1914.
WELL COMPLETED Dec 30th 1914
No water obtained



Office of Chief Engineer.
North Bay Ont Dec 14th 1914

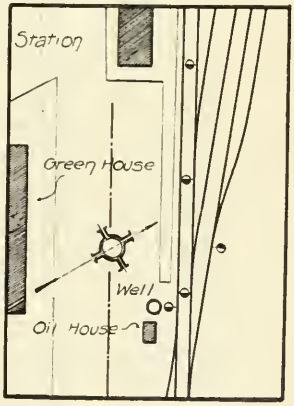
T & N O R Y

RECORD OF DEEP WELLS AT ENGLEHART WELL No. 1

LOG OF WELL

Ground Elevations 681.00

LOCATION - Under Steel Water Tower
DATE BEGAN DRILLING Nov 1907
WELL COMPLETED - Nov 1907



GEOLOGICAL REPORT

50	Sand
	Normal water level 30 ± from surface
115	Clay
35	Quartz Sand
15	Fine Quartz Gravel
10	Blue Shale
30	Limestone
30	Brown Shale
50	Limestone
10	Quartz Blue Shale

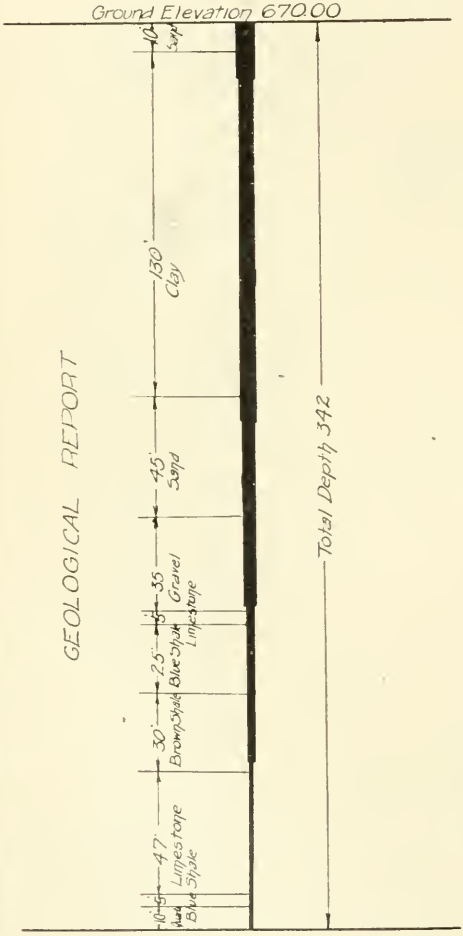
Total Depth 335

Office of Chief Engineer
North Bay Ont. Dec. 14th 1914

T. & N. O. RLY.
RECORD OF DEEP WELLS
AT ENGLEHART
WELL No. 2

LOG OF WELL

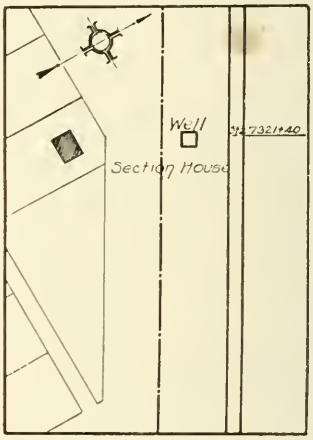
Ground Elevation 670.00



LOCATION:- On Rod W. 1005' N.W. of Station

DATE BEGAN DRILLING

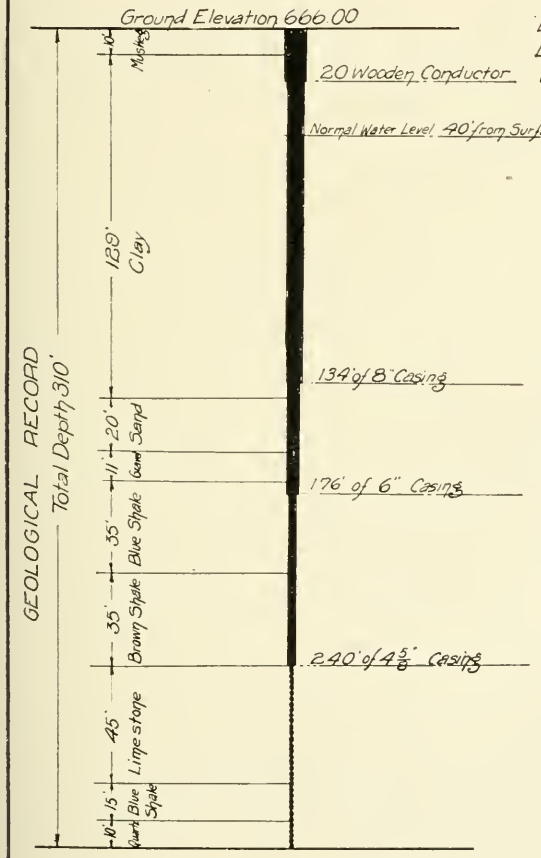
WELL COMPLETED:-



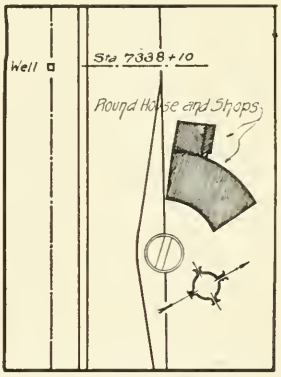
Office of Chief Engineer
North Bay, Ont. Dec 14th 1914

T & N.O.RLY.

RECORD OF DEEP WELLS AT ENGLEHART WELL No 3



LOCATION:- On N.g. w. 2675 ft. N. of Station
DATE BEGAN DRILLING:- Dec. 1907
WELL COMPLETED:- Dec 1907

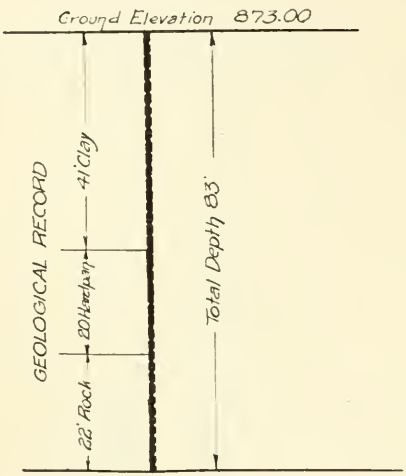


Office of Chief Engineer.
North Bay, Ont. Dec. 14th 1914.

T. & N. O. RLY.

RECORD OF DEEP WELLS AT MATHESON HOLE No 1

LOG OF WELL



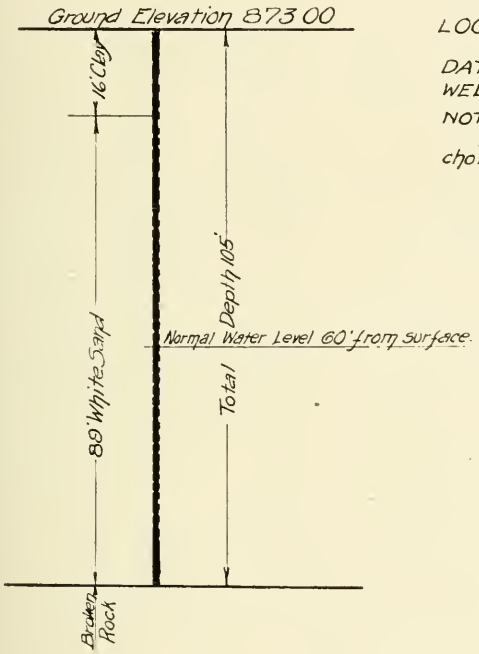
LOCATION:- South side of Through Siding East of East Leg of Wye.
DATE BEGAN DRILLING Sept. 20th 1913
WELL COMPLETED:- Oct. 2nd 1913
No water obtained:- Casing withdrawn

Office of Chief Engineer
North Bay Ont. Dec 14th 1914

T. & N. O. R.

RECORD OF DEEP WELLS AT MATHESON HOLE - No 2.

LOG OF WELL



LOCATION:- Near tail of Wye

DATE BEGAN DRILLING:- Oct 3rd 1913
WELL COMPLETED:- Oct 10th 1913

NOTE:-
Water obtained at 60 Level but well choked up by sand.
Well abandoned, Casing withdrawn

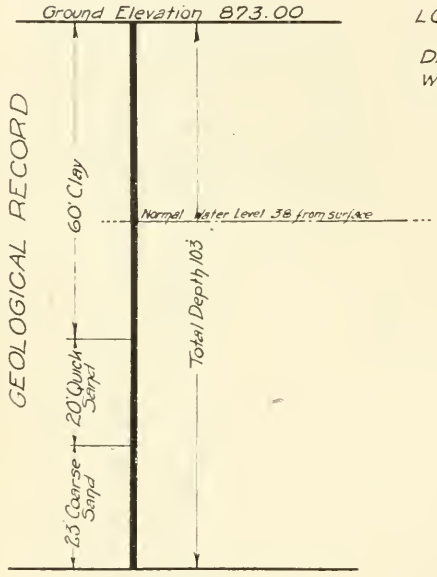
Office of Chief Engineer,
North Bay, Ont. Dec. 14th 1914

T.& N.O.RLY

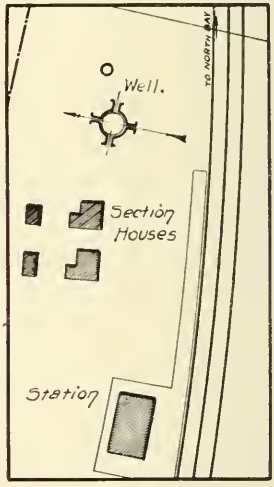
RECORD OF DEEP WELLS AT MATHESON

WELL No 1 - HOLE No 4.

LOG OF WELL



LOCATION: On station Grounds East of Section House
DATE BEGAN DRILLING:- Nov- 1913
WELL COMPLETED :- Nov- 1913.

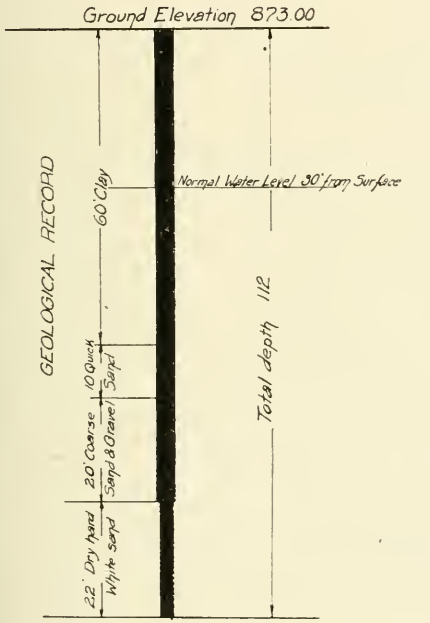


Office of Chief Engineer
North Bay Ont. Dec. 14th/14

T.& N.O.R.

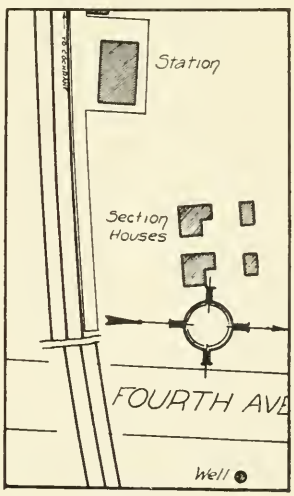
RECORD OF DEEP WELLS
AT MATHESON
WELL Nº 2 HOLE Nº 5

LOG OF WELL



LOCATION - On Station Grounds East of road crossing
DATE BEGAN DRILLING:- May 3rd 1914
WELL COMPLETED:- May 31st 1914
Delivery 30 Gals. per minute

BACTERIOLOGICAL REPORT- Water does not show infection with harmful bacteria



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North Bay Ont Dec 14th 1914

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Seventh Annual Report

OF THE

HYDRO-ELECTRIC POWER COMMISSION

OF THE

PROVINCE OF ONTARIO

FOR YEAR ENDED OCTOBER 31st

1914

PRINTED BY ORDER OF

THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:

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1915

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To His Honour the HONOURABLE JOHN STRATHEARN HENDRIE, C.V.O.,

Lieutenant-Governor of Ontario.

MAY IT PLEASE YOUR HONOUR:

The undersigned has the honour to present to Your Honour the Seventh Annual Report of the Hydro-Electric Power Commission of Ontario for the fiscal year ending October 31st, 1914.

Respectfully submitted,

ADAM BECK,

Chairman.

Toronto, February 15, 1915.

Sir Adam Beck, K.B.,

Chairman, Hydro-Electric Power Commission,

Toronto, Ont.

Sir,—I have the honour to transmit herewith the Seventh Annual Report of the Hydro-Electric Power Commission of Ontario for the fiscal year ending October 31st, 1914.

I have the honour to be,

Sir,

Your obedient servant,

W. W. Pope,

Secretary.

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO

SIR ADAM BECK, K.B., London, Chairman

HON. I. B. LUCAS, M.P.P., Markdale, Commissioner

W. K. McNAUGHT, C.M.G., Toronto, Commissioner

W. W. POPE, Secretary

F. A. GABY, Chief Engineer

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SEVENTH ANNUAL REPORT

OF THE

Hydro-Electric Power Commission

SECTION I

LEGAL PROCEEDINGS

ACTS

The following Act with respect to the public construction and operation of Electric Railways was passed by the Legislature of the Province of Ontario during the Session of 1914.

This Act invests the Commission with power to act on behalf of the municipal corporations interested to issue bonds for the carrying on of the work, taking the debentures of the corporations as security, and thus provide ways and means for the financial undertaking of work in this connection.

The Hydro-Electric Railway Act

4 Geo. V., Chap. 31

An Act respecting the Public Construction and Operation of Electric Railways.

Assented to May 1st, 1914.

Preamble.

WHEREAS it is expedient to provide for the economical and efficient construction and operation of electric railways in localities in which municipal corporations are willing to provide and bear the cost of the work, and that in order to further the success of the undertaking means should be provided for the co-operation of the municipal corporations interested and that the work should be undertaken by or under the direction of the Hydro-Electric Power Commission of Ontario acting for and on behalf of the municipal corporations interested; and whereas it appears that the funds required for carrying out any such undertaking can best be provided by the issue of bonds by the Commission, such bonds to be a charge upon the railway and other works comprised in the undertaking, the debentures of the several corporations interested being deposited as collateral security for the payment of the said bonds, and neither the Province nor the Commission being liable for the payment thereof except to the extent of the moneys received by the Commission from time to time from the municipal corporations;

Therefore His Majesty, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows—

Short title.

1. This Act may be cited as *The Hydro-Electric Railway Act,* 1914.

Interpretation.

2. In this Act,

"Commission."

(*a*) "Commission" shall mean the Hydro-Electric Power Commission of Ontario.

"Corporation."

(*b*) "Corporation" shall mean a municipal corporation other than a municipal corporation of a county.

Inquiry and report by Commission

3. Whenever required by the Lieutenant-Governor in Council so to do, the Commission may enquire into, examine, investigate and report upon,—

Rev. Stat., c. 39.

(*a*) the cost of constructing and operating an electric railway in any locality in which electrical power or energy may be supplied by the Commission under *The Power Commission Act;*

(*b*) the municipalities the inhabitants of which will be served by the railway;

(*c*) the population of each of such municipalities as shown by the last enumeration thereof by the assessors;

(*d*) an estimate of the probable revenue from the railway;

(*e*) the practicability of the undertaking and its economic value to the locality to be served by it.

Agreement for construction and operation by Commission.

4.—(1) A corporation or two or more corporations may, if authorized by the Lieutenant-Governor in Council so to do, enter into an agreement with the Commission for the construction, equipment and operation of an electric railway to be operated by electrical power or energy supplied by the Commission.

Provisions of agreement.

(2) The agreement shall provide for

(*a*) the location of the line of the railway:

(*b*) the character of the equipment and service to be furnished and the maximum tolls or fares to be chargeable thereon;

(*c*) the proportion in which the cost of construction, equipment, maintenance and operation of the railway shall be borne by each of the corporations interested;

(*d*) the issuing of debentures of the corporation or of each of the corporations and their deposit with the Commission as collateral security for any bonds issued by the Commission for the construction of the railway;

(*e*) the proportion of the revenue from such railway to be paid annually by the Commission to each corporation after deducting the charges hereinafter mentioned;

(*f*) the construction of the railway upon any right of way acquired by the Commission for the transmission of electrical power or energy under *The Power Commission Act* and the amount chargeable to the railway by way of rental or otherwise for the use of such right of way. Rev. Stat., c. 39.

(3) The agreement may be in the form or to the effect set out in Schedule "A" with such variations, additions or alterations as the Lieutenant-Governor in Council may approve. Form of agreement.

(4) The agreement shall not be executed by the corporation or the Commission or come into effect until the terms thereof have been sanctioned by the Lieutenant-Governor in Council. Sanction of Lieutenant-Governor in Council.

(5) After such sanction shall have been obtained the council of the municipal corporation or of each of the municipal corporations interested may by by-law passed with the assent of the municipal electors authorized to vote on money by-laws under *The Municipal Act* approve of the agreement and direct its execution. Submission of by-law for approval of agreement. Rev. Stat., c. 192.

5.—(1) The by-law submitted to the electors shall recite Recitals in by-law.

(*a*) the estimated cost of the work;

(*b*) the portion of the cost of the construction and equipment of the line to be borne by the corporation of the municipality;

(*c*) the total annual amount estimated to be required for the maintenance of the railway and for sinking fund charges and interest;

(*d*) the portion of such amount to be borne by the municipality.

(2) The agreement shall be set out in the by-law or be published therewith. Agreement to be set out.

6.—(1) The Commission may raise money for the construction and equipment of the railway by the issue for and on behalf of the corporations of bonds charged upon and secured by the railway and all the assets, rights, privileges, revenue, works, property and effects belonging thereto or held or used in connection therewith and may from time to time increase such issue of bonds by any amount which it deems necessary to cover the cost of such construction and equipment or to provide for the extension or improvement of the railway. Bond issue by Commission.

(2) The bonds shall be payable in fifty years from the date of the issue thereof, but it shall not be necessary for the Commission to raise or provide for any sinking fund for the retirement of the bonds until after the expiration of the first ten years of the said period of fifty years. Terms of bonds. Sinking fund.

2 H

Application of revenue to sinking fund for retirement of bonds.

(3) In order to provide for the payment of such bonds as the same become due the Commission may out of the revenue of the railway after payment of working expenses including the supply of electrical power or energy and the cost of administration set aside a sufficient sum to provide a sinking fund for the purpose of redeeming the bonds at maturity.

Province and Commission not to be liable for bonds.

7. Neither the Province of Ontario nor the Commission shall be liable in any manner for the payment of such bonds except to the extent of

(*a*) the moneys received by the Commission as revenue from the operation of the railway after payment of working expenses, including the cost of electrical power or energy and the cost of administration; and

(*b*) the moneys received from the corporations or from the sale of the debentures of the corporations for the payment of the bonds and the interest thereon.

Bonds may be guaranteed by Province.

8.—(1) Notwithstanding anything contained in section 7, the Lieutenant-Governor in Council may authorize the Treasurer of Ontario, for and on behalf of the Province, to guarantee the payment of the bonds issued by the Commission.

Form of guaranty.

(2) The form of the guaranty and the manner of its execution shall be determined by the Lieutenant-Governor in Council.

Annual payments of corporations.

9.—(1) The council of every corporation entering into an agreement with the Commission under this Act shall annually raise and pay over to the Commission its proportion of such sums as may be required by it for working capital or to meet any deficit in the cost of maintenance and operation of the railway, including the cost of the supply of electrical power or energy by reason of the revenue from the railway being insufficient to meet such charges, and shall also annually raise and pay over to the Commission its proportion of a sum sufficient to meet the interest on any bonds issued by the Commission under the powers conferred by this Act, and an annual sum sufficient to form in forty years from the expiration of the first ten years of the currency of the bonds a sinking fund for their retirement at maturity.

Annual adjustment and apportionment.

10. The Commission shall annually adjust and apportion the amounts payable by the municipal corporations under the next preceding section.

Deposit of debentures of corporation with Commission.

11.—(1) After the execution of the agreement as provided by section 4 the corporations shall issue and deposit with the Commission debentures to the amounts respectively apportioned as their respective shares of the cost of the construction and equipment of the railway and shall from time to time thereafter upon the requisition in writing of the Commission issue and deposit with the Commission such further debentures as may be required for the construction, completion, extension or improvement of the railway, in the proportions fixed by the agreement.

(2) The debentures so issued shall be held by the Commission as collateral security for the bonds issued by the Commission under section 6, and when any corporation party to this agreement shall make default in any payment required to be made by it under this Act or under the agreement, the Commission shall thereupon sell or otherwise dispose of so much of the debentures of such corporation as shall be necessary to supply such deficiency. Debentures to be collateral security for bonds.

(3) If the amount realized by the sale or other disposal of the debentures is insufficient, with the amount of the remaining debentures of the corporation to meet the share of the cost apportioned to the corporation, the corporation shall forthwith issue and deposit with the Commission debentures to a sufficient amount to make up the deficiency. Deposit of debentures to make up deficiency.

(4) It shall not be necessary to obtain the assent of the electors to any by-law for the issue of debentures under this section. Assent of electors not required.

12. Subject to the provisions of section 13, after the deposit of the debentures as provided by section 11, the Commission may construct, complete, equip, maintain and operate the railway as provided by the agreement, and for that purpose shall have and may exercise all the powers, rights, immunities and privileges of a company incorporated by special Act for the construction of a railway under *The Ontario Railway Act* so far as the same are applicable. Powers of Commission. Rev. Stat., c. 185.

13.—(1) Where land is required for any of the purposes for which land may be acquired or expropriated under *The Ontario Railway Act*, the Commission in respect thereof shall have the powers and shall proceed in the manner provided by *The Ontario Public Works Act* where the Minister of Public Works takes land or property for the use of Ontario, and the provisions of the said Act shall, *mutatis mutandis*, apply. Expropriation to be under. Rev. Stat., c. 35.

(2) Where compensation would be payable upon the exercise of any powers by the Commission under *The Ontario Railway Act* the same shall be determined in the manner provided by *The Ontario Public Works Act*. Compensation, how determined. Rev. Stat., c. 35.

(3) Sections 65 to 69 of *The Ontario Railway Act* shall not apply to the Commission or to any railway constructed by it. Rev. Stat., c. 185, ss. 65-69 not to apply.

14. Subject to the provisions of subsection 3 of section 6 the Commission shall apply the revenue derived from the operation of the railway to the payment of the working expenses of the railway and to the payment of the interest on the bonds issued under section 6, and after payment of the same shall annually pay over the balance, if any, to the corporations parties to the agreement in the proportions fixed thereby. Application of revenues.

15. No action or prosecution shall be brought against the Commission or any member thereof or any of its officers for anything done under this Act without the consent of the Attorney-General of Ontario. Action not to be brought without consent of Attorney-General.

Province and Commission not liable for errors in estimates, etc.

16. The Province shall not, nor shall the Commission, nor any member thereof, incur any liability by reason of any error or omission in any estimates, plans, or specifications prepared or furnished by the Commission.

Railway vested in Commission in trust for corporations.

17. Every railway and the works, property and effects held and used in connection therewith, constructed, acquired, operated and maintained by the Commission under this Act, shall be vested in the Commission in trust for the corporations parties to the agreement for the construction and operation of the railway.

Rev. Stat., c. 187, repealed.

18. *The Hydro-Electric Railway Act*, being chapter 187 of the Revised Statutes of Ontario, 1914, is repealed.

SCHEDULE "A."

This indenture made the day of , in the year of our Lord, one thousand nine hundred and ,

Between

The Hydro-Electric Power Commission of Ontario (hereinafter called the "Commission") of the First Part,

and

the Municipal Corporation of (hereinafter called the "Corporation") of the Second Part.

Whereas pursuant to *The Hydro-Electric Railway Act, 1914*, the Commission was requested to enquire into, examine, investigate and report upon the cost of construction and operation of an electric railway or railways to be constructed through certain districts in which the corporations are situated, together with the probable revenue that would result from the operation of such railway or railways;

And whereas the Commission has furnished the corporations with such a report showing (1) the total estimated capital cost, operating revenue and expenses of the railway or railways, and (2) the proportion of the capital cost to be borne by each of the corporations as set forth in schedule "B" attached hereto;

And whereas on receipt of the said report the corporations requested the Commission to construct, equip and operate a system of electric railways (hereinafter called the railway) over the routes laid down in schedule "A" attached hereto, upon the terms and conditions and in the manner herein set forth;

And whereas the Commission has agreed with the corporations on behalf of the corporations to construct, equip and operate the railway upon the terms and conditions and in the manner herein set forth; but upon the express condition that the Commission shall not in any way be liable by reason of any error or omission in any estimates, plans or specifications for any financial or other obligation or loss whatsoever by virtue of this agreement or arising out of the performance of the terms thereof;

And whereas the electors of each of the corporations have assented to by-laws authorizing the corporations to enter into this agreement with the Commission for the construction, equipment, and operation of the railway as laid down in the said schedules, subject to the following terms and conditions;

And whereas the corporations have each issued debentures for the amounts set forth in schedule "B" attached hereto, and have deposited the said debentures with the Commission;

Now therefore this indenture witnesseth:—

1. In consideration of the premises and of the agreements of the corporations herein contained, and subject to the provisions of the said Act, the Commission agrees with the corporations respectively:—

(*a*) To construct, equip and operate the railway through the districts in which the corporations are situate on behalf of the corporations;

(*b*) To construct and operate the railway over the routes laid down in schedule "A";

(*c*) To issue bonds, as provided in paragraph 3 of this agreement, to cover the cost of constructing and equipping the railway;

(*d*) To furnish as far as possible first-class modern and standard equipment for use on the railway, to operate this equipment so as to give the best service and accommodation possible, having regard to the district served, the type of construction and equipment adopted, and all other equitable conditions, and to exercise all due skill and diligence so as to secure the most effective operation and service of the railway consistent with good management;

(*e*) To regulate and fix the fares and rates of toll to be collected by the railway for all classes of service.

(*f*) To utilize the routes and property of the railway for all purposes from which it is possible to obtain a profit;

(*g*) To combine the property and works of the railway and the power lines of the Commission where such combination is feasible and may prove economical to both the railway and the users of the power lines;

(*h*) To permit and obtain interchange of traffic with other railways wherever possible and profitable;

(*i*) To supply electrical power or energy for operation of the railway at rates consistent with those charged to municipal corporations;

(*j*) To apportion annually the capital costs and operating expenses of all works, apparatus and plant used by the railway in common with the Commission's transmission lines in a fair manner, having regard to the service furnished by the expenditure under consideration;

(*k*) To apply the revenue derived from the operation of the railway and any other revenue derived from the undertaking to the payment of operating expenses (including electrical power), the cost of administration, and annual charges for interest and sinking fund on the money invested, and such other deductions as are herein provided for;

(*l*) To set aside from any revenue thereafter remaining an annual sum for the renewal of any works belonging in whole or in part to the undertaking;

(*m*) To pay over annually to the corporations, if deemed advisable by the Commission in the interests of the undertaking, any surplus that may remain after providing for the items above mentioned. The division of such surplus between the corporations to be fixed by the Commission on an equitable basis, having regard in the case of each corporation to the capital invested, the service rendered, the comparative benefits derived, and all other like conditions;

(*n*) To take active steps for the purpose of constructing, equipping and operating the railway at the earliest possible date after the execution of this agreement by the corporations and the deposit of the debentures as called for under clause 2 (*b*) hereof and to commence operation of each section as soon as possible after its completion;

(*o*) To make such extensions to the railway described in schedule "A" as may appear advantageous and profitable from time to time.

2. In consideration of the premises and of the agreements herein set forth, each of the corporations for itself, and not one for the other, agrees with the Commission:—

(*a*) To bear its share of the cost of constructing, equipping, operating, maintaining, repairing, renewing and insuring the railway and its property and works as established by the Commission, subject to adjustments and apportionment between the corporations by the Commission from time to time;

(*b*) To issue debentures for the amounts set forth in schedule "B" maturing in fifty years from the date of issue thereof, and payable yearly at the Bank, at Toronto, Ontario. Such debentures shall be deposited with the Commission previous to the issuing of the bonds mentioned above, and may be held or disposed of from time to time by the Commission, as provided for in clause 4 hereof, in such amounts, at such rates of discount or premium, and on such terms and conditions as the Commission in its sole discretion shall deem to be in the interests of the railway, the proceeds of such debentures being used solely for the purposes herein contained. The amount of debentures of each corporation sold or disposed of from time to time shall be such proportion as may be fixed by the Commission of the total amount of debentures, due regard being given to the capital invested, the service rendered, the comparative revenue derived, and all other equitable conditions;

(*c*) To make no agreement or arrangement with, and to grant no bonus, license or other inducement to any other railway or transportation company without the written consent of the Commission;

(*d*) To keep, observe and perform the covenants, provisos and conditions set forth in this agreement intended to be kept and observed and performed by the corporations, and to execute such further or other documents and to pass such by-laws as may be requested by the Commission for the purpose of fully effectuating the objects and intent of this agreement;

(*e*) To furnish a free right of way for the railway and for the power lines of the Commission over any property of the corporations upon being so requested by the Commission, and to execute such conveyance thereof or agreement with regard thereto as may be desired by the Commission.

3. It shall be lawful and the Commission is hereby authorized to create or cause to be created an issue of bonds, and to sell or dispose of the same on behalf of the corporations. Such bonds to be charged upon and secured by the railway, and all the assets, rights, privileges, revenues, works, property and effects belonging thereto or held or used in connection with the railway constructed, acquired, operated and maintained by the Commission under this agreement, and to be for the total amounts mentioned in schedule "B" hereto attached; provided that the Commission may, upon obtaining the consent as herein defined of the majority of the corporations, increase the said bond issue by any amount necessary to cover the capital cost of extending the railway, and may also without such consent increase the said bond issue to cover the cost of additional works or equipment of any kind for use on the railway to an extent not exceeding ten per cent. (10%) of the bonds issued from time to time. In order to meet and pay such bonds and interest as the same becomes due and payable the Commission shall in each year after the expiration of ten years from the date of the issue of the bonds out of the revenue of the railway after payment of operating expenses (including electrical power) and the cost of administration set aside a sufficient sum to provide a sinking fund for the purpose of redeeming the same at maturity. Debentures issued by the corporations in compliance with clause 2 (*b*) hereof, shall, to the extent of the par value of any bonds outstanding from time to time, be held or disposed of by the Commission in trust for the holders of such bonds as collateral security for payment thereof; it being understood and agreed that in the event of any increase of the said bond issue each corporation shall, upon the request of the Commission, deposit with the Commission additional debentures as described in clause 2 (*b*) hereof, to be held or disposed of by the Commission as collateral security for such increase of the said bond issue, and that any debentures held by the Commission in excess of the par value of the outstanding bonds from time to time may be held or disposed of by the Commission to secure payment of any deficit arising from the operation of the railway.

4. In the event of the revenue derived from the operation of the undertaking being insufficient in any year to meet the operating expenses (including electrical power), the cost of administration and the annual charges for interest and sinking fund on the bonds, and for the renewal of any works belonging in whole or in part to the railway, such deficit shall be paid to the Commission by the corporations upon demand of and in the proportion adjusted by the Commission. In the event of the failure of any corporation to pay its share of such a deficit as adjusted by the Commission, it shall be lawful for the Commission in the manner provided in clause 2 (*b*) to dispose of debentures held by the Commission as security for any such deficit. Any arrears by any corporation shall bear interest at the legal rate.

5. Should any corporation fail to perform any of the obligations to the Commission under this agreement, the Commission may, in addition to all other remedies and without notice, discontinue the service of the railway to such corporation in default until the said obligation has been fulfilled, and no such discontinuance of service shall relieve the corporation in default from the performance of the covenants, provisos and conditions herein contained.

6. In case the Commission shall at any time or times be prevented from operating the railway or any part thereof by strike, lock-out, riot, fire, invasion, explosion, act of God, or the King's enemies, or any other cause reasonably beyond its control, then the Commission shall not be bound to operate the railway or such part thereof during such time; but the corporations shall not be relieved from any liability or payment under this agreement, and as soon as the cause of such interruption is removed the Commission shall, without any delay, continue full operation of the railway, and each of the corporations shall be prompt and diligent in doing everything in its power to remove and overcome any such cause or causes of interruption.

7. It shall be lawful for, and the corporations hereby authorize the Commission to unite the business of the railway with that of any other railway system operated in whole or in part by the Commission, and to exchange equipment and operators from one system to the other, proper provision being made so that each system shall pay its proportionate share of the cost of any equipment used in common.

8. If at any time any other municipal corporation applies to the Commission for an extension of the railway into its municipality the Commission shall notify the applicant and the corporations, in writing, of a time and place to hear all representations that may be made as to the terms and conditions relating to such proposed extension. If, on the recommendation of the Commission, such extension shall be authorized, without discrimination in favor of the applicant, as to the cost incurred or to be incurred for or by reason of any such extension, the Commission may extend the railway upon such terms and conditions as may appear equitable to the Commission.

No such application for an extension of the railway into any municipality the corporation of which is not a party to this agreement shall be granted if it is estimated by the Commission that the cost of service of the railway to the corporations parties hereto will be thereby increased or the revenue and accommodation be injuriously affected without the written consent of the majority of the corporations parties hereto.

9. The consent of any corporation required under this agreement shall mean the consent of the council of such corporations, such consent being in the form of a municipal by-law duly passed by the council of the corporation.

10. The Commission shall, at least annually, adjust and apportion between the corporations the cost of construction, equipment, operation, interest, sinking fund, and also the cost of renewing the property of the railway.

11. Every railway and all the works, property and effects held and used in connection therewith, constructed, acquired, operated and maintained by the Commission under this agreement and the said Act shall be vested in the Commission on behalf of the corporations; but the Commission shall be

entitled to a lien upon the same for all money expended by the Commission under this agreement and not repaid.

12. Each of the corporations covenants and agrees with the other:—

(*a*) To carry out the agreements and provisions herein contained;

(*b*) To co-operate by all means in its power at all times with the Commission to create the most favorable conditions for the carrying out of the objects of this agreement and of the said Act, and to increase the revenue of the railway and ensure its success.

13. In the event of any difference between the corporations the Commission may, upon application, fix a time and place to hear all representations that may be made by the parties, and the Commission shall adjust such differences, and such adjustments shall be final. The Commission shall have all the powers that may be conferred upon a commissioner appointed under the *Act Respecting Enquiries Concerning Public Matters.*

14. This agreement shall continue and extend for a period of fifty years from the day of , 1914, and at the expiration thereof be subject to renewal, with the consent of the corporations from time to time for like periods of fifty years, subject to adjustment and re-apportionment as herein provided for the purposes of this agreement as though the terms hereof had not expired. At the expiration of this agreement the Commission shall determine and adjust the rights of the corporations, having regard to the amounts paid or assumed by them respectively under the terms of this agreement, and such other considerations as may appear equitable to the Commission and are approved by the Lieutenant-Governor in Council.

15. This agreement shall not come into effect until it has been sanctioned by the Lieutenant-Governor in Council.

The following Act was passed by the Legislature at its last Session to validate certain By-laws passed and contracts entered into with the various municipalities and also giving further powers to the Commission with reference to the acquiring of flooded lands on behalf of a Municipality. It also provides the means for Townships to light the streets and roads and gives further powers to the Commission relative to the appointment of Inspectors.

The Power Commission Act, 1914

4 Geo. V., Chap. 16

An Act to amend The Power Commission Act and to Confirm certain Municipal By-laws and Contracts.

Assented to May 1st, 1914.

HIS MAJESTY, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows:—

Short title.

1. This Act may be cited as *The Power Commission Act, 1914.*

Rev. Stat., c. 39, s. 5, subs. 2, amended. Remuneration of Chairman.

2. Subsection 2 of section 5 of *The Power Commission Act* is amended by striking out the words "such salary or other remuneration" in the third and fourth lines and inserting in lieu thereof the words "the payment to him of any salary or other remuneration under this Act."

Rev. Stat., c. 39, s. 8, amended.

3. Section 8 of *The Power Commission Act* is amended by adding thereto the following as clause (*ee*):—

Acquiring flooded lands on behalf of municipality.

(*ee*) Enter upon, take and use, without the consent of the owner thereof, any land which may in the opinion of the Commission be necessary for the full enjoyment and exercise of any water right, water privilege or improvement undertaken by the Commission or by any municipal corporation or for the relief of the municipal corporation from liability for damages for the flooding or overflowing of such lands, but the proceedings taken under this clause shall be at the sole expense of the municipal corporation, and the Commission may convey the land so acquired to the corporation or make such other disposition thereof with the consent of the corporation as may be deemed expedient.

Rev. Stat., c. 39, s. 23, cl. c, amended. Contribution by municipalities.

4. Clause (*c*) of section 23 of *The Power Commission Act* is amended by adding at the end thereof the words "and such sum not exceeding $15,000 per annum as the Lieutenant-Governor in Council may direct to be paid to the Chairman and other members of the Commission as remuneration for their services in addition to any sum payable to them out of the Consolidated Revenue Fund."

Rev. Stat., c. 39, amended.

5. *The Power Commission Act* is amended by inserting therein the following as Part II*a*.

PART IIa.

SUPPLY OF POWER FOR STREET LIGHTING IN TOWNSHIPS.

Petition of residents in a locality for supply for street lighting.

30a.—(1) A majority of the resident freeholders according to the last revised assessment roll, residing within the area described in the petition and situated in the township, may petition the council of the township to take the necessary proceedings to procure from the Commission a supply of electrical power or energy for the purpose of lighting the streets or roads in the locality described in the petition.

Certificate as to sufficiency.

(2) The petition shall be accompanied by the certificate of the clerk of the township stating that the petition is signed by a majority of the resident freeholders in the locality described in the petition as shown by the last revised assessment roll.

Application by council to the Commission.

30b.—(1) The council of the corporation shall thereupon request the Commission to supply electrical power or energy for the purposes mentioned in the petition.

Estimates, etc., of cost to be furnished.

(2) Upon such request the Commission shall furnish to the corporation an estimate of the maximum cost per horse power at which the electrical power or energy will be supplied at the point of development or delivery by the Commission, and an estimate of the cost of constructing and providing the transmission lines by means of which the amount of electrical power or energy is to be supplied and of maintaining the same, and may furnish to the corporation plans and specifications of the works, plant, machinery and appliances necessary for the distribution of such power or energy for the purpose of lighting the streets or roads in the locality defined in the petition and an estimate of the cost thereof and such other information as the commission may deem advisable.

Consideration of the estimates, plans, etc., by the Council.

30c.—(1) Within one month after the delivery of the statements and estimates mentioned in the next preceding section the council shall at a special meeting called for that purpose, of which notice shall have been given to each of the petitioners, consider the statements and estimates furnished by the Commission.

Withdrawal of petitions.

(2) If at such meeting the petitioners or any of them desire to withdraw their names from the petition they may do so, and should the remaining names be insufficient to constitute a majority of the resident freeholders in the locality described in the petition, no further proceedings shall be taken thereon.

Power of council to pass a by-law authorizing contract.

(3) If at the close of the meeting there are sufficient names remaining of the petitioners to constitute a majority of the resident freeholders in the locality described in the petition, the corporation may, without submitting the same to a vote of the electors, and without any of the other formalities in the case of a by-law passed under Part I, pass a by-law for entering into a contract with the Commission for the supply of electrical power or energy for the purposes required by the petitioners and may enter into a contract with the Commission for that purpose.

Issue of debentures.

(4) The by-law may provide for the issue of debentures of the corporation payable within twenty years from the issue thereof to meet the cost of construction and installation of the works, plant, machinery and appliances necessary for the distribution of the electrical power or energy, and for the levying of a special rate upon the taxable property within the locality described in the petition for payment of principal and interest in the manner provided by *The Municipal Act*.

Rev. Stat., c. 192.

Special rate on property affected.

(5) All moneys required to meet the costs incurred by the corporation under this Part shall be raised, levied and collected by an annual special rate upon the taxable property lying within the locality described in the petition.

Annual payments to the Commission.

30*d*. All the provisions of Part I as to the annual payments to be made by corporations which have entered into contracts with the Commission shall apply to the contracts entered into under this Part.

Rev. Stat., c. 39, s. 37, subs. 1.

6. Subsection 1 of section 37 of *The Power Commission Act* is amended by adding thereto the following clause:

As to appointment of Inspector.

(*c*) The organization of the office of inspector, the qualification and duties of inspectors, and the form of the municipal by-law respecting the appointment of inspectors and prescribing such qualification and duties.

Rev. Stat., c. 39, s. 37, amended.

7. Section 37 of *The Power Commission Act* is amended by adding thereto the following subsections:—

Inspector, appointment of, by the Commission where municipality neglects.

(3) Where a municipal corporation refuses to appoint or in the opinion of the Commission unnecessarily delays the appointment of an inspector in accordance with the regulations the Commission may make the appointment and fix the amount of the salary and allowance for necessary expenses of the inspector and the same shall be payable by the municipal corporation.

(4) An inspector may be authorized by the Commission to act in more than one municipality, and in that case the salary and expenses of the inspector shall be apportioned by the Commission between the corporations of the municipalities for which he is appointed and shall be payable by them as the Commission shall direct. Authority of Inspector as to territory. Expense in such case.

(5) Every appointment of an inspector by a municipal corporation shall be subject to the approval of the Commission, and no by-law for that purpose shall be passed or take effect until such approval has been obtained. Appointments must be approved.

(6) A municipal corporation may by by-law impose such fees as may be thought proper for the inspection of works under this section, but the same shall at all times be subject to the approval of the Commission. Fees for Inspector.

8. The municipal corporation of the Town of Walkerville, the municipal corporation of the Town of Strathroy, the municipal corporation of the Village of Elora, the municipal corporation of the Village of Fergus, the municipal corporation of the Village of New Toronto, and the municipal corporation of the Police Village of Thorndale, are added as parties of the second part to the contract set out in Schedule "A" to *The Power Commission Act, 1909*, as varied and confirmed by the said Act, and as further varied and confirmed by the Act passed in the tenth year of the reign of His late Majesty King Edward the Seventh, chaptered 16, as amended by the Act passed in the first year of the reign of His Majesty, King George the Fifth, and as amended by this Act, and the said contracts shall be binding upon the parties thereto respectively: Certain municipal corporations made parties to contract. 9 Edw. VII. c. 19. 10 Edw. VII. c. 16. 1 Geo. V. c. 16.

As to the Town of Walkerville, from the 16th day of December, 1913;

As to the Town of Strathroy, from the 2nd day of March, 1914;

As to the Village of Elora, from the 10th day of November, 1913;

As to the Village of Fergus, from the 10th day of November, 1913;

As to the Village of New Toronto, from the 18th day of July, 1913;

As to the Police Village of Thorndale, from the 1st day of July, 1913.

9. The names of the said municipal corporations are added to Schedule "B" of the said contract, and such schedule shall be read as containing the particulars set out in Schedule "A" to this Act. Names of corporations added to contract.

Contracts with Prescott, Brockville, Winchester, Chesterfield, Owen Sound and Ottawa confirmed.

10. The contracts set out as Schedules "B," "C," "D," "E," "F," and "G" hereto, between the Hydro-Electric Power Commission of Ontario and the Corporations of Prescott, Brockville, Winchester, Chesterville, Owen Sound and Ottawa are hereby confirmed and declared to be legal, valid and binding upon the parties thereto, respectively, and shall not be open to question upon any grounds whatsoever, notwithstanding the requirements of *The Power Commission Act,* or the amendments thereto or any other statute.

Rev. Stat., c. 39.

By-laws of Walkerville, Strathroy, Elora, Fergus, West Nissouri, Owen Sound, Prescott, Brockville, Winchester, Chesterville, and New Toronto, confirmed.

11. By-law No. 499 of the corporation of the Town of Walkerville, By-law No. 827 of the corporation of the Town of Strathroy, By-laws Nos. 522 and 525 of the corporation of the Village of Elora, By-law No. 475 of the corporation of the Village of Fergus, By-laws Nos. 229 and 239 of the corporation of the Township of West Nissouri, By-law No. 1523 of the corporation of the Town of Owen Sound, By-law No. 651 of the corporation of the Town of Prescott, By-law No. B828 of the corporation of the Town of Brockville, By-laws Nos. 316 and 322 of the Corporation of the Village of Winchester, By-laws Nos. 218 and 224 of the corporation of the Village of Chesterville, By-laws Nos. 11 and 14 of the corporation of the Village of New Toronto are confirmed and declared to be legal, valid and binding upon such corporations and the ratepayers thereof, respectively, and shall not be open to question upon any ground whatsoever, notwithstanding the requirements of *The Power Commission Act* or the amendments thereto or of any other statute.

Rev. Stat., c. 39.

By-law 1353 of Windsor amended and confirmed.

12. Notwithstanding anything contained in *The Municipal Act,* By-law number 1353 of the City of Windsor is amended by striking out the paragraph numbered 3 therein and substituting therefor the paragraph numbered 3 in the by-law as set out in Schedule "H" to this Act, and the said by-law as so amended is confirmed, and the debentures to be issued thereunder shall be issued and bear date and be payable as provided in the said by-law as so amended, and as so issued shall be legal, valid and binding upon the corporation of the City of Windsor and the ratepayers thereof.

SCHEDULE "A."

Additions to Schedule "B" to the contract set out in Schedule "A" to 9 Edward VII. c. 19.

Name of Municipal Corporation.	Maximum price of power at Niagara Falls.	No. of Volts.	Quantity of power applied for in h.p.	Estimate of maximum cost of power ready for distribution in municipality.	Estimate proportionate part of cost to construct transmission line, transformer stations and works for nominally 30,000 h.p. with total capacity of 60,000 h.p.	Estimate of proportionate part of line loss and of part cost to operate, maintain, repair, renew and insure transmission line, transformer stations and works for nominally 30,000 h.p. with total capacity of 60,000 h.p.
Walkerville		..	1,500	$38 00	$428,190	$18,665
Strathroy		..	200	44 07	63,716	3,319
Elora		..	200	33 97	42,294	2,541
Fergus		..	200	33 97	42,294	2,541
New Toronto.. ..		..	50	28 00	8,076	482
Thorndale		..	80	45 00	23,548	1,515

SCHEDULE B

This Indenture made this twenty-sixth day of July, A.D. 1912, between the Hydro-Electric Power Commission of Ontario, acting herein on its own behalf and with the approval of the Lieutenant-Governor-in-Council (hereinafter called the Commission), party of the First Part, and the Municipal Corporation of Prescott (hereinafter called the Corporation), parties of the Second Part.

Whereas pursuant to "An Act to provide for transmission of electrical power to Municipalities," and the amendments thereto, the Corporation applied to the Commission to transmit and supply such power, and the Commission has entered into contracts with a Company or Companies for the supply of such power at the prices set forth in the schedule, hereto attached, and the Commission has furnished the Corporation with estimates, as shown in the schedule of the total cost of such power, and the electors of the Corporation assented to By-laws authorizing the Corporation to enter into a contract with the Commission for such power, and the Commission have estimated the line loss and the cost to construct, operate, maintain, repair, renew and insure a line to transmit such power to the Corporation, and have apportioned the part of such cost to be paid by each Corporation as shown in said schedule.

Now therefore this Indenture witnesseth that in consideration of the premises and of the agreements of the Corporation herein set forth, subject to the provisions of said Act and the amendments thereto, and of the said contracts subject to any variations thereof by the Corporation, the Commission agrees with the Corporation respectively:—

1. (*a*) To construct a line to transmit the quantities of electric power, shown in column 2 of the said schedule, to the Corporation shown in column 1 respectively.

(*b*) On the 1st day of December, 1912, or on any earlier day on which the Commission shall be prepared to supply said power in quantities set forth in column 2 of said schedule to the Corporation within the limits thereof, ready for distribution at approximately the number of volts set forth in column 4 of said schedule, and approximately 60 cycles per second frequency.

(*c*) At the expiration of three months' written notice, which may be given by the Corporation or any of them from time to time during the continuance of this agreement, to supply from time to time to the Corporation in blocks of not less than 100 horse-power each, additional power until the total amount so supplied shall amount to 15,000 horse-power or such further amount as the Commission may be able and willing to supply.

(*d*) To use at all times first-class, modern, standard, commercial apparatus and plant and to exercise all due skill and diligence so as to secure the most perfect operation of the plant and apparatus of the Corporation.

In consideration of the premises and of the agreements herein set forth each of the Corporations for itself, and not one for the other, agrees with the Commission:—

2. (*a*) Subject to the provisions of paragraph 2 (*g*) hereof, to pay to the Commission for the quantities of power shown in column 2 of said schedule to be supplied as aforesaid from the date when the Commission notifies the Corporation that it is ready to supply such power, and for all additional power held in reserve upon any of the above mentioned notices from the respective dates thereof until the termination of this agreement, the price set forth in column 3 of said schedule in twelve monthly payments, in gold coin of the present standard of weight and fineness, and bills shall be rendered by the Commission on or before the fourth and paid by the Corporation on or before the fifteenth of each month. If any bill remains unpaid for 15 days, the Commission may, in addition to all other remedies and without notice, discontinue the supply of such power to the Corporation in default until said bill is paid. No such discontinuance shall relieve the Corporation in default from the performance of the covenants, provisos and conditions herein contained. All payments in arrears shall bear interest at the legal rate.

(*b*) To take electric power exclusively from the Commission during the continuance of this agreement; provided, if the Commission is unable to supply said power as quickly as required, the Corporation may obtain the supply otherwise until the Commission has provided such supply, thereupon the Corporation shall immediately take from the Commission; and the Corporation may generate, store or accumulate electric power for emergencies, or to keep down the peak load of the power taken from the Commission; and nothing herein contained shall affect existing contracts between the Corporation and other parties for a supply of electric power, but the Corporation shall determine said contracts at the earliest date possible.

(*c*) To pay, annually, interest at four per cent. per annum upon its proportionate part of the moneys expended by the Commission on capital account for the construction of the said line, transformer stations and other necessary works, shown, respectively, in column 6 of said schedule, subject to adjustment under paragraph 9.

(*d*) To pay an annual sum for its proportionate part of the cost of the construction of said line, stations and works, shown, respectively, in column 6 of said schedule, subject to adjustment under paragraph 9, so as to form in thirty years a sinking fund for the retirement of the securities to be issued by the Province of Ontario.

(*e*) To bear its proportionate part of the line loss and pay its proportionate part of the cost to operate, maintain, repair, renew and insure the said line, stations and works, shown respectively in column 7 of said schedule, subject to adjustment under paragraph 9.

(*f*) To keep, observe and perform the covenants, provisos and conditions set forth in said contracts, intended by the Commission and the Company to be kept and observed and performed.

(*g*) To pay as a minimum for three-fourths of the power to be supplied at said date and of the power held in reserve upon any of the said notices, whether the said power is taken or not; and when the greatest amount of power taken for twenty consecutive minutes in any month shall exceed during such twenty minutes three-fourths of the amount to be supplied and held in reserve for pay for this greater amount during that entire month; the amount payable for a month being one-twelfth part of the annual rate applicable to the horse power in question. When the power factor of the greatest amount of power taken for said twenty minutes falls below 90 per cent, the Corporation shall pay for 90 per cent of said power divided by the power factor.

(*h*) To take no more power than the amount to be supplied and held in reserve at said date and upon said notices, as per paragraph 1 (*c*).

(*i*) To use at all times first-class, modern, standard, commercial apparatus and plant to be approved by the Commission.

(*j*) To exercise all due skill and diligence so as to secure the most perfect operation of the plant and apparatus of the Commission and the Company.

3. If, as therein provided, the said contracts are continued until nineteen hundred and forty-two (1942) this agreement shall remain in force until that date.

4. (*a*) Said power shall be three-phase, alternating, commercially continuous twenty-four hour power every day of the year, except as provided in paragraph 6 hereof, and shall be measured by curve-drawing meters, subject to test as to accuracy by either party hereto.

(*b*) The maintenance by the Commission of approximately the agreed voltage at approximately the agreed frequency at the point of delivery to the Corporation shall constitute the supply and the holding in reserve of all power involved herein, and the fulfilment of all operating obligations hereunder; the amount of the power, its fluctuations, load factor, power factor, distribution as to phases, and all other electric characteristics and qualities being under the sole control of the Corporation, their agents, customers, apparatus, appliances and circuits.

5. The Engineers of the Commission, or one or more of them, or any other person or persons appointed for this purpose by the Commission, shall have the right from time to time during the continuance of this agreement to inspect the apparatus, plant and property of the Corporation, and take records at all reasonable times on giving to the Corporation six hours' notice of the intention to make such inspection. The Corporation shall have a like right on giving a like notice to inspect the apparatus, plant and property of the Commission.

6. In case the Commission or the Company shall at any time or times be prevented from supplying said power, or any part thereof, or in case the Corporation shall at any time be prevented from taking said power, or any part thereof, by strike, lockout, riot, fire, invasion, explosion, act of God or the King's enemies, or any other cause reasonably beyond their control, then the Commission shall not be bound to deliver such power during such time, and the Corporation shall not be bound to pay the price of said power at the point of delivery by the Company during such time, but the Corporation shall continue to make all other payment, but as soon as the cause of such interruption is removed the Commission shall without any delay supply such power as aforesaid and the Corporation shall take the same, and each of the parties hereto shall be prompt and diligent in removing and overcoming such cause or causes of interruption.

7. If, and so often as, any interruption shall occur in the service of the Company due to any cause or causes other than those provided for by the next preceding paragraph hereof, the Commission shall pay to the Corporation as liquidated and ascertained damages, and not by way of penalty, their respective proportionate shares of whatever sum is payable to the Commission by reason of such interruption; and when the amount thereof has been settled, such sum may be deducted from any moneys payable by the Corporation to the Commission, but such right of deduction shall not in any case delay the said monthly payments, nor shall the Commission be subject to any other liability for any non-delivery.

8. In case any municipal corporation, or any person, firm or corporation which shall contract with the Commission or with any municipal corporation for a supply of power furnished to the Commission by the Company shall suffer damages by the act or neglect of the Company, and such municipal corporation, person, firm or corporation would, if the Company had made the said contracts directly with them, have had a right to recover such damages or commence any proceedings or any other remedy, the Commission shall be entitled to commence any such proceedings or bring such action for or on behalf of such municipal corporation, person, firm or corporation, and notwithstanding any Statute, decision or rule of law to the contrary, the Commission shall be entitled to all the rights and remedies of such municipal corporation, person, firm or corporation, including the right to recover such damages, but no action shall be brought by the Commission until such municipal corporation, person, firm or corporation shall have agreed with the Commission to pay any costs that may be adjudged to be paid if such proceedings or action is unsuccessful. The rights and remedies of any such municipal corporation, person, firm or corporation shall not be hereby prejudiced.

9. The Commission shall at least annually adjust and apportion the amounts payable by municipal corporations for such power and such interest sinking fund, line loss, and cost of operating, maintaining, repairing, renewing and insuring the line and works.

10. (*a*) If at any time any other municipal corporation, or pursuant to said Act, any railway or distributing company or any other corporation or person, applies to the Commission for a supply of power, the Commission shall notify the applicant and the Corporation, parties hereto, in writing, of a time and place, and hear all representations that may be made as to the terms and conditions for such supply.

(*b*) Without discrimination in favor of the applicants as to the price to be paid, for equal quantities of power, the Commission may supply power upon such terms and conditions as may, having regard to the risk and expense incurred, and paid, and to be paid by the Corporation, parties hereto, appear equitable to the Commission, and approved by the Lieutenant-Governor-in-Council.

(*c*) No such application shall be granted if the said line is not adequate for such supply, or if the supply of the Corporations, parties hereto, will be thereby injuriously affected, and no power shall be supplied within the limits of a municipal corporation taking power from the Commission at the time of such application, without the written consent of such corporation.

(*d*) In determining the quantity of power supplied to a municipal corporation, the quantity supplied by the Commission within the limits of the Corporation to any applicant, other than a municipal corporation, shall be computed as part of the quantity supplied to such corporation, but such corporation shall not be liable to pay for the power so supplied, or otherwise in respect thereof. No power shall be supplied, by any municipal corporation, to any railway or distributing company, without the written consent of the Commission.

11. It is hereby declared that the Commission is to be a trustee of all property held by the Commission under this agreement for the Corporation and other municipal corporations supplied by the Commission, but the Commission shall be entitled to a lien upon said property for all moneys expended by the Commission under this agreement and not repaid. At the expiration of this agreement, the Commission shall determine and adjust the rights of the Corporation and other municipal corporations, supplied by the Commission, having regard to the amounts paid by them, respectively, under the terms of this agreement, and such other considerations as may appear equitable to the Commission and are approved by the Lieutenant-Governor-in-Council.

12. Each of the Corporations agrees with the other:

(*a*) To take electric power exclusively from the Commission during the continuance of this agreement, subject to the provisos above set forth in paragraph 2 (*b*).

(*b*) To co-operate, by all means in its power, at all times, with the Commission, to increase the quantity of power required from the Commission, and in all other respects to carry out the objects of this agreement and of the said Act.

13. If differences arise between the Corporations the Commission may upon application fix a time and place and hear all representations that may be made by the parties, and the Commission shall, in a summary manner,

when possible, adjust such difference, and such adjustments shall be final. The Commission shall have all the powers that may be conferred upon a Commission appointed under *The Act respecting Enquiries concerning Public Matters.*

14. This agreement shall extend to, be binding upon and enure to the benefit of the successors and assigns of the parties hereto.

In witness whereof the Commission and the Corporation have respectively affixed their corporate Seals and the hands of their proper officers.

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO.

(Seal.)

(Sgd.) A. BECK,
Chairman Hydro-Electric Power Commission.
(Sgd.) W. W. POPE,
Secretary,
(Sgd.) JOHN S. HENDRIE.

(Sgd.) F. W. ELLIOTT,
Mayor.
(Sgd.) GEO. W. ROOK,
Town Clerk.
(Seal.)

SCHEDULE

Column 1	2	3	4	5	6	7
Name of Municipal Corporation.	Quantity of power applied for in horse-power.	Cost of power at point of delivery to Commission.	No. of Volts.	Estimate maximum cost of power ready for distribution in municipality.	Estimate proportionate part of cost to construct transmission line transformer station and works for nominally h.p. with total capacity of	Estimated proportionate part of line loss and of part cost to operate, maintain, repair, renew and insure transmission line, transformer station works for nominally h.p. with capacity of h.p.
Brockville	1,000		13,200	$24 04	$76,950	$7,077
Prescott	300		13,200	24 54	30,594	1,838

For all power taken up to 2,000 h.p., $14.00 per h.p.
Then for all power taken up to 4,000 h.p., $13.40 per h.p.
" " " " " 6,000 " 12.50 " "
" " " " " 8,000 " 12.00 " "
" " " " " 10,000 " 11.50 " "
" " " " " 10,000 " or over, $11.00 per h.p.

Similar agreements between the Hydro-Electric Power Commission and the Municipal Corporation of the Town of Brockville, the Municipal Corporation of the Village of Winchester and the Municipal Corporation of the Village of Chesterville, otherwise known as Schedules "C," "D" and "E" of this Act have been omitted.

SCHEDULE "F."

This Indenture made in duplicate the 27th day of October, in the year of Our Lord one thousand, nine hundred and thirteen,

Between

The Hydro-Electric Power Commission of Ontario, hereinafter called the "Commission," party of the first part;

and

The Municipal Corporation of the Town of Owen Sound, hereinafter called the "Corporation," party of the second part.

Whereas, pursuant to "An Act to provide for the Transmission of Electrical Power to Municipalities," known as *The Power Commission Act* and Amendments thereto, the Corporation applied to the Commission for a supply of power, and the Commission furnished the Corporation with estimates of the total cost of such power, ready for distribution within the limits of the Corporation (and the electors of the Corporation assented to the by-laws authorizing the Corporation to enter into a contract with the Commission for such power).

1. Now therefore this indenture witnesseth that in consideration of the premises and of the agreement of the Corporation herein set forth, subject to the provisions of the said Act and amendments thereto, the Commission agree with the Corporation:—

(*a*) To reserve and deliver at the earliest possible date 1,200 h.p. or more of electrical power to the Corporation.

(*b*) At the expiration of reasonable notice in writing which may be given by the Corporation from time to time during the continuance of this agreement, to reserve and deliver to the Corporation additional electric power when called for.

(*c*) To use at all times first-class, modern, standard commercial apparatus and plant and to exercise all due skill and diligence so as to secure satisfactory operation of the plant and apparatus of the Corporation.

(*d*) To deliver commercially continuous 24-hour power every day in the year to the Corporation at the distribution bus bars in the Commission's sub-station within the Corporation's limits.

2. In consideration of the premises and of the agreement herein set forth, the Corporation agrees with the Commission:—

(*a*) To use all diligence and every lawful means in its power to prepare for the receipt and use of the power dealt with by this agreement so as to be able to receive power when the Commission is ready to deliver same.

(*b*) To pay annually interest at 4 per cent to 4½ per cent per annum upon the Corporation's proportionate part (based on the quantity of electrical energy or power taken) of all moneys expended by the Commission on capital account for the acquiring of properties and rights and acquiring

and construction of generating plants, transformer stations, transmission lines, distributing stations, and other works necessary for the delivery of said electrical power or energy to the Corporation under the terms of this contract.

Also to pay an annual sinking fund instalment of such amount as to form at the end of 30 years, with accrued interest, a sinking fund sufficient to repay the Corporation's proportionate part, based as aforesaid, of all moneys advanced by the Province of Ontario for the acquiring of properties and rights, the acquiring and construction of generating plants, transformer stations and transmission lines, distributing stations and other work necessary for the delivery of the electrical energy or power, delivered to the Corporation under the terms of this contract. Also to pay the Corporation's proportionate part, based as aforesaid, of the cost of lost power and the cost of operating, maintaining, repairing, renewing and insuring said generating plants, transformer stations, transmission lines, distributing stations, and other necessary works.

(*c*) The amounts payable under this contract shall be paid in twelve monthly payments, in gold coin of the present standard of weight and fineness, at the offices of the Commission at Toronto. Bills shall be rendered by the Commission on or before the 5th day and paid by the Corporation on or before the 15th day of each month. If any bill remains unpaid for fifteen days, the Commission may, in addition to all other remedies and without further notice, discontinue the supply of power to the Corporation until the said bill is paid. No such discontinuance shall relieve the Corporation from the performance of the covenants, provisos and conditions herein contained. All payments in arrears shall bear interest at the legal rate.

(*d*) To take electric power exclusively from the Commission during the continuance of this agreement.

(*e*) To co-operate by all means in its power at all times with the Commission to increase the quantity of power required from the Commission, and in all other respects to carry out the objects of this agreement, and of the said Act.

(*f*) To pay for three-fourths of the power ordered from time to time by the Corporation and held in reserve for it as herein provided whether it takes the same or not. When the greatest amount of power taken for any twenty consecutive minutes during any month shall exceed during the twenty consecutive minutes three-fourths of the amount ordered by the Corporation and held in reserve, then the Corporation shall pay for this greater amount during the entire month.

(*g*) If the Corporation during any month takes more than the amount of power ordered and held in reserve for it for twenty consecutive minutes, the taking of such excess shall thereafter constitute an obligation on the part of the Corporation to pay for, and on the part of the Commission to hold in reserve, such increased quantity of power in accordance with the terms and conditions of this contract.

(*h*) When the power factor of the greatest amount of power taken for said twenty consecutive minutes falls below 90 per cent the Corporation shall pay for 90 per cent of said power divided by the power factor.

(*i*) To use at all times first-class, modern, standard, commercial apparatus and plant, approved by the Commission.

(*j*) To exercise all due skill and diligence so as to secure satisfactory operation of the plant and apparatus of the Commission and of the Corporation.

3. This agreement shall remain in force for thirty years from date of the first delivery of power under this contract.

4. The power shall be alternating, three phase, having a periodicity of approximately 60 cycles per second, and shall be delivered as aforesaid at a voltage suitable for local distribution.

(*a*) That the meters with their series and potential transformers shall be connected at the point of delivery.

(*b*) That the maintenance by the Commission of approximately the agreed voltage at approximately the agreed frequency at the substation in the limits of the Corporation shall constitute the supply of all power involved herein and the fulfilment of all operating obligations hereunder, and when voltage and frequency are so maintained, the amount of the power, its fluctuations, load factor, power factor, distribution as to phases and all other electric characteristics and qualities, are under the sole control of the Corporation, their agents, customers, apparatus, appliances and circuits.

5. The engineers of the Commission, or one or more of them, or any other person or persons appointed for this purpose by the Commission, shall have the right from time to time during the continuance of this agreement to inspect the apparatus, plant and property of the Corporation and take records at all reasonable hours.

6. The Commission shall at least annually adjust and apportion the amount or amounts payable by the municipal corporation or corporations for such power and such interest, sinking fund, cost of lost power and cost of generating, operating, maintaining, repairing, renewing and insuring said works.

If at any time any other municipal corporation, or pursuant to said Act, any railway or distributing company, or any other corporation or person, applies to the Commission for a supply of power, the Commission shall notify the applicant and involved corporation or corporations in writing of a time and place to hear all representations that may be made as to the terms and conditions for such supply.

Without discrimination in favor of the applicants as to the price to be paid, for equal quantities of power, the Commission may supply power upon such terms and conditions as may, having regard to the risk and expense incurred, and paid and to be paid by the Corporation, appear equitable to the Commission, and are approved by the Lieutenant-Governor-in-Council.

No such application shall be granted if the said works or any part thereof are not adequate for such supply, or if the supply of the Corporation will be thereby injuriously affected and no power shall be supplied within the limits of a municipal corporation taking power from the Commission at the time of such application without the written consent of such corporation.

In determining the quantity of power supplied to a municipal corporation the quantity supplied by the Commission within the limits of the corporation to any applicant other than a municipal corporation, shall be computed as part of the quantity supplied to such corporation, but such corporation shall not be liable for payment for any portion of the power so supplied. No power shall be supplied by the municipal corporation to any railway or distributing company without the written consent of the Commission. Power shall not be sold for less than the cost and there shall be no discrimination as regards price and quantity.

7. It is hereby declared the Commission is to be a trustee of all property held by the Commission under this agreement for the corporation or corporations supplied by the Commission, but the Commission shall be entitled to a lien upon said property for all moneys expended by the Commission under this agreement and not repaid. At the expiration of this agreement the Commission shall determine and adjust the rights of the Corporation and any other (if any) supplied by the Commission, having regard to the amounts paid by them respectively under the terms of this agreement and such other considerations as may appear equitable to the Commission and are approved by the Lieutenant-Governor-in-Council.

8. If differences arise between corporations to which the Commission is supplying power, the Commission may upon application fix a time and place and hear all representations that may be made by the parties and the Commission shall, in a summary manner when possible, adjust such differences and such adjustment shall be final. The Commission shall have all the powers that may be conferred upon a Commissioner appointed under *The Act respecting Enquiries Concerning Public Matters.*

9. This agreement shall extend to, be binding upon and inure to the benefit of the successors and assigns of the parties hereto.

In witness whereof the Commission and the Corporation have respectively affixed their corporate seal and the hand of their proper officers.

HYDRO-ELECTRIC POWER COMMISSION.

(Seal.)

(Sgd.) A. Beck.

(Sgd.) W. W. Pope, *Secretary.*

(Seal.)

(Sgd.) E. Limou, *Mayor.*

(Sgd.) Chas. Gordon, *Clerk.*

SCHEDULE G.

This Indenture made in duplicate this Second day of February, in the year of Our Lord, One Thousand Nine Hundred and Fourteen.

Between:

The Hydro-Electric Power Commission of Ontario, hereinafter called the "Commission," Party of the First Part,

and

The Municipal Corporation of the City of Ottawa, hereinafter called the "Corporation," Party of the Second Part.

Whereas, pursuant to "An Act to provide for transmission of electrical power to Municipalities," the Corporation applied to the Commission for a supply of power, and the Commission have entered into a contract with the Ottawa and Hull Power and Manufacturing Company, Limited, and the electors of the Corporation assented to a by-law authorizing the Corporation to enter into a contract with the Commission for such power.

And whereas, in accordance with this Act, the Commission on July 31st, 1907, made a contract with the City of Ottawa for a supply of power from the Ottawa and Hull Power and Manufacturing Company, Limited, and a further agreement for additional power on September 6th, 1910.

And whereas it is the desire of both parties hereto that it be declared that the said agreements of July 31st, 1907, and September 6th, 1910, be terminated and superseded by this agreement as hereinafter set out.

And whereas the Commission has entered into a new agreement with the Ottawa and Hull Power and Manufacturing Company, Limited, hereinafter called the "Company," being dated the 8th day of December, A.D. 1913, for the delivery to the Commission of electric power and energy for the supply of the said Corporation.

And whereas the Corporation has applied to the Commission for a new agreement for a supply of power, in accordance with the agreement between the Commission and the Company dated December 8th, 1913.

1. Now therefore this Indenture witnesseth, that in consideration of the premises and of the agreements of the Corporation herein set forth, subject to the provisions of said Act and of the said contract, the Commission agrees with the Corporation:—

(*a*) To reserve and deliver at the earliest possible date 5,000 h.p. or more of electric power to the Corporation.

(*b*) At the expiration of thirty days' notice in writing, which may be given by the Corporation from time to time during the continuance of this agreement, to reserve and deliver to the Corporation additional electric power when called for in blocks of 500 h.p. each until 20,000 h.p. is being delivered or reserved.

Should any such notices current at any one time, calling for 1,000 h.p. or more, require the installation of additional generating capacity, then the Commission shall not be liable for the non-delivery of such additional power under the notice until six (6) months after the respective dates of such notices. The additional power or such portion thereof as the generating capacity of the Company's plant will permit, will, however, continue to be delivered.

(*c*) To use at all times first-class, modern, standard, commercial apparatus and plant, and to exercise all due skill and diligence so as to secure satisfactory operation of the plant and apparatus of the Corporation.

(*d*) The power shall be delivered to the Corporation at approximately 11,000 volts and at approximately 60 cycles per second.

2. In consideration of the premises and of the agreements herein set forth, the Corporation agrees with the Commission:—

(*a*) To use all diligence by every lawful means in its power to prepare for the receipt and use of the power dealt with by this agreement so as to be able to receive power when the Commission is ready to deliver the same.

(*b*) Subject to the provisions of paragraph *a* (*f*) hereof to pay to the Commission the following prices:—

$14 per h.p. per annum for all power taken until the amount taken or held in reserve by the Commission from the Company shall equal or exceed 8,000 h.p.

When the amount taken or held in reserve from the Company by the Commission shall have increased to 8,000 h.p., then for each and every horsepower taken by the Corporation, $13.50 per h.p. per annum.

When the amount taken or held in reserve from the Company by the Commission shall have increased to 10,000 h.p., then for each and every horsepower taken by the Corporation, $13 per h.p. per annum.

When the amount taken or held in reserve from the Company by the Commission shall have increased to 12,000 h.p., then for each and every horsepower taken by the Corporation, $12.50 per h.p. per annum.

When the amount taken or held in reserve from the Company by the Commission shall have increased to 14,000 h.p., then for each and every horsepower taken by the Corporation, $12 per h.p. per annum.

When the amount taken or held in reserve from the Company by the Commission shall have increased to 16,000 h.p., then for each and every horsepower taken by the Corporation, $11.50 h.p. per annum.

When the amount taken or held in reserve from the Company by the Commission shall have increased to 18,000 h.p., then for each and every horsepower taken by the Corporation, $11 per h.p. per annum.

(*c*) To pay in addition annually interest at 4 per cent or 4½ per cent per annum upon the moneys expended by the Commission on capital account for the construction of transmission lines, transformer stations and equipment, and other necessary works required for the delivery of power.

Also to pay an annual part of the cost of the construction of the said line, station and works, so as to form in thirty (30) years a sinking fund for the payment of the moneys advanced by the Province of Ontario in connection with this work.

Also to pay the cost of operating, maintaining, repairing, renewing and insuring the said line, station and works.

(*d*) The amounts payable under this contract shall be paid in twelve monthly payments in gold coin of the present standard of weight and fineness, at the office of the Commission at Toronto, and bills shall be rendered by the Commission on or before the fifth day and paid by the Corporation on or before the fifteenth day of each month. If any bill remains unpaid for fifteen days, the Commission may, in addition to all other remedies and without notice, discontinue the supply of power to the Corporation until said bill is paid. No such discontinuance shall relieve the Corporation from the performance of the covenants, provisos and conditions herein contained. All payments in arrears shall bear interest at the legal rate.

(*e*) To take electric power exclusively from the Commission during the continuance of this agreement.

(*f*) To pay for three-fourths of the power ordered from time to time by the Corporation and held in reserve for it as herein provided, whether it takes the same or not. When the greatest amount of power taken for any twenty consecutive minutes during any month shall exceed during the twenty consecutive minutes three-fourths of the amount ordered by the Corporation and held in reserve, then the Corporation shall pay for this greater amount during the entire month.

If the Corporation during any month takes more than the amount of power ordered and held in reserve for it for twenty consecutive minutes, the taking of such excess shall thereafter constitute an obligation on the part of the Corporation to pay for and on the part of the Commission to hold in reserve an additional block of power in accordance with the terms and conditions of this contract.

When the power factor of the greatest amount of power taken for said twenty consecutive minutes falls below 90 per cent, the Corporation shall pay ninety per cent. of said power divided by the power factor.

(*g*) To use at all times first-class, modern, standard commercial apparatus and plant approved by the Commission.

(*h*) To exercise all due skill and diligence so as to secure satisfactory operation of the plant and apparatus of the Commission and the Corporation.

(*i*) To co-operate by all means in its power, at all times, with the Commission to increase the quantity of power required from the Commission, and in all other respects to carry out the objects of this agreement and of the said Act.

3. This agreement shall remain in force for ten years from the date of the first delivery of power under this agreement; the Corporation may, at its option, continue this agreement for one or two further successive terms of ten years each.

(*a*) The Corporation may exercise the first of these options by giving notice in writing of its intention to continue this agreement for a further term of ten years at least two years before the expiration of the first term of ten years.

(*b*) The Corporation may exercise the second of these options by giving notice to the Commission in writing of its intention to continue this agreement for the third term of ten years, at least two years before the expiration of the second term of ten years.

4. The power shall be approximately 11,000 volts, 60-cycle, 3-phase, alternating, commercially continuous twenty-four hour power every day in the year except as provided herein. and shall be delivered at the disconnecting switches on the outgoing feeders installed in the Commission's sub-station or on the feeder cables of the Company, within the limits of the municipality.

The Commission shall not be responsible for any failure to deliver power due to the withdrawal or suspension or variation of the necessary permission from the Government of the Dominion of Canada granted the Company to construct and maintain poles, conduits, wires, and other apparatus necessary to transmit and convey the said power, upon any property or structure under the control of the said Government.

(*a*) That the meters with their series or potential transformers may be connected to the high-tension side or low-tension side of the transformers, or some connected to one side and some connected to the other, as the Commission may elect. That whenever connected at other than the point of measurement their readings shall be subject to a correction and shall be corrected to give a reading such as would be obtained by instruments as if connected at the point of measurement. That such corrections shall be based upon tests made upon the step-down transformers and transmission lines by the Commission, or any other tests upon them acceptable to the Commission as to the efficiency, regulation or any other constants of the transformers and transmission lines necessary for said correction, but that such tests, when made by the Commission, are to be made in the presence of the representative or representatives of the Corporation if it so desires.

(*b*) The maintenance by the Commission of approximately the agreed voltage at approximately the agreed frequency at the sub-station in the limits of the Corporation shall constitute the supply of all power involved herein and the fulfilment of all operating obligations hereunder; and when voltage and frequency are so maintained, the amount of power, its fluctuations, load factor, power factor, distribution as to phases and all other electric characteristics and qualities are under the sole control of the Corporation, their agents, customers, apparatus, appliances and circuits.

(*c*) The Corporation shall arrange to provide and invest the Company with all the necessary rights, licenses and franchises to enable the Company to construct and maintain poles, conduits, wires and other apparatus necessary to transmit and convey the said power within the limits of the City of Ottawa, to the said point of delivery.

5. The engineers of the Commission, or one or more of them, or any other person or persons appointed for this purpose by the Commission,

shall have the right from time to time during the continuance of this agreement to inspect the apparatus, plant and property of the Corporation and take records at all reasonable hours.

6. In case the Commission should at any time or times be prevented from supplying said power, or any part thereof, or in case the Corporation shall at any time be prevented from taking said power, or any part thereof, by strike, lock-out, fire, invasion, explosion, act of God, or the King's enemies, or any other cause reasonably beyond their control, then the Commission shall not be bound to deliver such power during such times, and the Corporation shall not be bound to pay the price of said power during such time, but as soon as the cause of such interruption is removed, the Commission shall without any delay supply said power as aforesaid, and the Corporation shall take the same and shall be prompt and diligent in removing and overcoming such cause or causes of interruption.

7. If, and so often as, any interruption shall occur in the service of the Power Company due to any cause or causes other than those provided for by the next preceding paragraph, the Commission shall recover and pay to the Corporation as liquidated and ascertained damages, and not by way of penalty, as follows: for any interruption of less than one hour double the amount payable for power which should have been supplied during the time of such interruption; and for any interruption of one hour or more the amount payable for the power which should have been delivered during the time of such interruption and two times the last mentioned amount in addition thereto, and all moneys payable under this paragraph, when the amount thereof is settled between the Commission and the Company, may be deducted from any money payable by the Corporation to the Commission, but such right of deduction shall not in any case delay the said monthly payments.

8. If at any other time any other municipal corporation, or, pursuant to said Act, any railway or distributing company, or any other corporation or person, applies to the Commission for a supply of power, the Commission shall notify the applicant and the Corporation in writing of a time and place and hear all representations that may be made as to the terms and conditions for such supply.

Without discriminating in favor of the applicants as to the price to be paid, for equal quantity of power, the Commission may supply power upon such terms and conditions as may, having regard to the risk and expense incurred, and paid, and to be paid by the Corporation, and are approved by the Leutenant-Governor-in-Council.

No such application shall be granted if the said line is not adequate for such supply, or if the supply of the Corporation will be thereby injuriously affected, and no power shall be supplied within the limits of a municipal corporation taking power from the Commission at the time of such application without the written consent of such Corporation.

In determining the quantity of power supplied to a municipal corporation, the quantity supplied by the Commission within the limits of the corporation to any applicant, other than a municipal corporation, shall be computed as part of the quantity supplied to such corporation, but such corporation shall not be liable to pay for the power so supplied, or otherwise in respect thereof. In order to prevent discrimination by the municipal corporation to any railway or distributing company without the written

consent of the Commission, but the Corporation may sell power to any person or persons or manufacturing companies inside the limits of the Corporation, but such power shall not be sold for less than the cost and without discrimination as regards price and quantity.

9. In case any municipal corporation, or any person, firm or corporation which shall contract with the Commission or with any municipal corporation for a supply of power furnished to the Commission by the Power Company shall suffer damages by the act or neglect of the Power Company, and such municipal corporation, person, firm or corporation would, if the Power Company had made the said contracts directly with them, have had a right to recover such damages or commence any proceedings or any other remedy, the Commission shall be entitled to commence any such proceedings or bring such action for or on behalf of such municipal corporation, person, firm or corporation, and notwithstanding any Acts, decision or rule of law to the contrary, the Commission shall be entitled to all the rights and remedies of such municipal corporation, person, firm or corporation, including the right to recover such damages, but no action shall be brought by the Commission until such municipal corporation, person, firm or corporation shall have agreed with the Commission to pay any costs that may be adjudged to be paid if such proceedings or action is unsuccessful. The rights and remedies of any such municipal corporation, person, firm or corporation shall not be hereby prejudiced.

10. The Commission shall annually adjust and apportion the amounts payable by municipal corporations for such power and such interest, sinking fund, line loss, and cost of operating, maintaining, repairing, renewing and insuring the line and works.

11. If differences arise between corporations to whom the Commission is supplying power, the Commission upon application may fix a time and place and hear all representations that may be made by the parties, and the Commission shall, in a summary manner, when possible, adjust such differences, and such adjustment shall be final. The Commission shall have all the powers that may be conferred upon a Commissioner appointed under *The Act respecting Enquiries Concerning Public Matters.*

12. If differences arise between the Corporation and the Commission, the Lieutenant-Governor-in-Council may, upon application, fix a time and place to hear all representations that may be made by the parties, and the Lieutenant-Governor-in-Council shall, in a summary manner, when possible, adjust such differences and such adjustment shall be final. The Lieutenant-Governor-in-Council shall have all the powers that may be conferred upon a Commissioner appointed under *The Act respecting Enquiries Concerning Public Matters.*

13. And it is hereby declared that the Commission is to be a trustee of all properties held by the Commission under this agreement for the corporations and other municipal corporations supplied by the Commission, but the Commission shall be entitled to a lien upon said property for all moneys expended by the Commission under this agreement and not repaid. At the expiration of this agreement the Commission shall determine and adjust the rights of the corporations and other municipal corporations, supplied by the Commission, having regard to the amounts paid by them respectively, under the terms of this agreement, and such other considerations as may appear equitable to the Commission and are approved by the Lieutenant-Governor-in-Council.

14. And it is hereby understood and agreed that the said agreements of 31st July, 1907, and the further agreement of September 6th, 1910, between the parties hereto shall be terminated and superseded by this agreement on the date of the first delivery of power to the Commission by the Company, under the new agreement between the Commission and the Company dated the 8th day of December, 1913.

In witness whereof the Commission and the Corporation have respectively affixed their corporate seals and the hands of their proper officers.

Signed, sealed and delivered
in the presence of

(Sgd.) REGINALD H. DOE.

HYDRO-ELECTRIC POWER COMMISSION,

(Sgd.) A. BECK. (Seal.)

(Sgd.) W. K. MCNAUGHT,

CORPORATION OF THE CITY OF OTTAWA.

(Sgd.) TAYLOR MCVEITY,
Mayor.

(Sgd.) JOHN HENDERSON,
City Clerk.

(Seal.)

SCHEDULE "H."

BY-LAW No. 1353.

A by-law to provide for the issue of debentures to the extent of $100,000 for the cost of a plant to distribute electric power to be supplied by the Hydro-Electric Power Commission of Ontario from Niagara Falls.

Provisionally adopted on the 25th of May, 1910.

Passed the 4th day of July, 1910, all the members voting in favor of the third reading.

Whereas it is necessary to raise by way of loan on the credit of the city the sum of one hundred thousand dollars ($100,000) to provide for the cost of works, plant, machinery and appliances necessary for the distribution of electric power in the City of Windsor and in the neighborhood thereof to be supplied by the Hydro-Electric Power Commission of Ontario from Niagara Falls and to provide for the expense of discount and other charges of negotiating the said loan;

And whereas the amount of the whole rateable property of the City of Windsor according to the last revised assessment roll thereof is $10,010,675;

And whereas the existing debenture debt of the City of Windsor is $564,905.60, exclusive of local improvements secured by special rates of assessment;

And whereas the sum of $100,000 is the debt intended to be created by this by-law;

And whereas it will require the sum of $5,783.01 to be raised annually for the period of thirty years by a special rate sufficient therefor on all the rateable property in the City of Windsor;

Therefore the Council of the Corporation of the City of Windsor enacts as follows:—

1. It shall be lawful for the mayor of the City of Windsor and the treasurer thereof to raise by way of loan, upon the security of the debentures hereinafter mentioned, from any person or persons, body or bodies corporate who may be willing to advance the same upon the credit of such debentures, a sum of money not exceeding the whole sum of $100,000, and to cause the same to be paid into the hands of the city treasurer for the purposes and with the objects above recited.

2. It shall be lawful for the said mayor and treasurer to cause any number of debentures to be made for such sums of money as may be required for the purposes aforesaid, either in currency or sterling money, payable in gold coin, for not less than one hundred dollars currency or twenty pounds sterling each, and not exceeding in the whole the sum of one hundred thousand dollars ($100,000), and the said debentures shall be sealed with the seal of the corporation and be signed by the mayor and treasurer, and be payable at the office of said treasurer in said city.

3. The said debentures shall bear date the 22nd day of June, 1914, and shall be payable on the 20th day of June of each year thereafter for and during the said period of thirty years and be for the respective amounts following, that is to say:—

One debenture for the sum of		$1,783.01,	payable in the year	1915
"	"	1,845.33,	"	1916
"	"	1,928.50,	"	1917
"	"	2,005.64,	"	1918
"	"	2,085.87,	"	1919
"	"	2,169.30,	"	1920
"	"	2,256.08,	"	1921
"	"	2,346.32,	"	1922
"	"	2,440.17,	"	1923
"	"	2,537.78,	"	1924
"	"	2,639.29,	"	1925
"	"	2,744.86,	"	1926
"	"	2,854.66,	"	1927
"	"	2,968.84,	"	1928
"	"	3,087.60,	"	1929
"	"	3,211.10,	"	1930
"	"	3,339.54,	"	1931
"	"	3,473.13,	"	1932
"	"	3,612.05,	"	1933
"	"	3,756.53,	"	1934
"	"	3,906.79,	"	1935
"	"	4,063.07,	"	1936
"	"	4,225.59,	"	1937
"	"	4,394.61,	"	1938
"	"	4,570.40,	"	1939
"	"	4,753.21,	"	1940
"	"	4,943.34,	"	1941
"	"	5,141.08,	"	1942
"	"	5,346.72,	"	1943
"	"	5,560.59,	"	1944

4. The said debentures shall have coupons attached thereto for the payment of the interest thereon, which interest shall be at the rate of four per cent. per annum from the date thereof, and shall be payable half-yearly on the 20th day of the months of June and December in each year at the place where the said debentures are made payable.

5. The whole of the said debentures shall be prepared at the said time and deposited for safe keeping in some chartered bank until required from time to time, and shall be issued and sold as required from time to time for the purposes herein set out, and when and only as sold the said debentures shall be signed by the mayor and treasurer of the said municipality for the time being, and be sealed with the corporate seal.

6. The said debentures shall have printed across the face thereof the words "Hydro-Electric Debentures."

7. During the currency of the said debentures there shall be raised annually by special rate on all the rateable property of the City of Windsor the sum of $5,783.01 for the purpose of repaying the amount due in each of said years for the principal and interest in respect of said debt.

8. This by-law shall take effect on, from and after the passing thereof.

9. The votes of the electors for and against this by-law shall be taken by ballot on the 20th day of June, 1910, from the hour of 9 o'clock in the forenoon until 5 in the afternoon of the same day at the places within the said Corporation of the City of Windsor, and by the deputy returning officers hereinafter specified, that is to say:—

For Ward No. 1, at Menard's blacksmith shop, corner of London Street and Caron Avenue—Thomas Tracey, deputy returning officer, and at Henry Thwaltes' house on the south side of London Street—William Clysdale, deputy returning officer.

For Ward No. 2, at No. 1 Hose Company's hose house on the north side of London Street—Ralph Thorn, deputy returning officer, and at Green's livery stable on the east side of Cartier Place—George Bliss, deputy returning officer.

For Ward No. 3, at the City Hall—Cecil Jackson, deputy returning officer, and at the house of Charles Bensette, west side of Howard Avenue—James Duncan, deputy returning officer.

For Ward No. 4, at Mrs. Dupont's house, north side of Brant Street—Hector Marentette, deputy returning officer, and at No. 3 Hose Company's hose house on the east side of Aylmer Avenue—Augustus Bensette, deputy returning officer.

10. That on the 17th day of June, 1910, at the City Hall, in the said City of Windsor, at the hour of 10 o'clock in the forenoon, the said mayor shall appoint in writing, signed by himself, two persons to attend to the final summing up of the votes aforesaid by the clerk of the council, and one person to attend at each polling place on behalf of the persons interested in and desirous of promoting the passing of this by-law, and a like number on behalf of the persons interested in and desirous of opposing the passing of this by-law.

11. That on the 22nd day of June, 1910, the clerk of the council shall, at the City Hall, in the said City of Windsor, at the hour of 12 o'clock noon, sum up the number of votes for and against this by-law in the presence of the persons appointed to attend thereat or in the presence of such of them and of any other persons entitled by by-law to be present as may be present.

(Signed) J. W. HANNA.
Mayor.

(Signed) STEPHEN LUSTED,
(Seal) *Clerk.*

NOTE.—*The paragraph numbered 3 in the by-law as originally passed is as follows:*—

3. The said debentures shall bear date the 22nd day of June, 1910, and shall be payable on the 20th day of June of each year thereafter for and during the said period of 30 years, and be for the respective amount following, that is to say:—

One debenture for the sum of		$1,783.01,	payable in the year	1911
"	"	1,854.33,	"	1912
"	"	1,928.50,	"	1913
"	"	2,005.64,	"	1914
"	"	2,085.87,	"	1915
"	"	2,169.30,	"	1916
"	"	2,256.08,	"	1917
"	"	2,346.32,	"	1918
"	"	2,440.17,	"	1919
"	"	2,537.78,	"	1920
"	"	2,639.29,	"	1921
"	"	2,744.86,	"	1922
"	"	2,854.66,	"	1923
"	"	2,968.84,	"	1924
"	"	3,087.60,	"	1925
"	"	3,211.10,	"	1926
"	"	3,339.54,	"	1927
"	"	3,473.13,	"	1928
"	"	3,612.05	"	1929
"	"	3,756.53,	"	1930
"	"	3,906.79,	"	1931
"	"	4,063.07,	"	1932
"	"	4,225.59,	"	1933
"	"	4.394.61,	"	1934
"	"	4,570.40,	"	1935
"	"	4,753.21,	"	1936
"	"	4,943.34,	"	1937
"	"	5,141.08,	"	1938
"	"	5,346.72,	"	1939
"	"	5,560.59,	"	1940

AGREEMENTS

During the fiscal year agreements for a supply of power have been made with the Municipalities of Ayr, Bolton, Creemore, Dresden, Drumbo, Elora, Embro, Fergus, Granthan Township, Lucan, New Toronto, Ottawa, Plattsville, Princeton, Simcoe, St. Catharines, Strathroy, Streetsville, Tay Township, Tilbury, Walkerville, Wallaceburg, Waterford and Woodbridge.

The new agreement with the City of Ottawa was necessary, as they were using up to the full quantity of power called for in their former agreement and a new contract was necessary. This also necessitated the making of a new contract with the Ottawa and Hull Power and Manufacturing Company, a copy of which is set out below. The agreement with the City of Ottawa is set out in the Power Commission Act of 1914.

Herewith copy of contract with Ottawa and Hull Power and Manufacturing Co. attached.

THIS AGREEMENT dated the 8th day of December, 1913 A.D.

BETWEEN:

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO acting herein on its own behalf and with the approval of the Lieutenant-Governor-in-Council, herein called the "Commission,"

Party of the First Part,

—and—

THE OTTAWA AND HULL POWER AND MANUFACTURING COMPANY, herein called the "Company."

Party of the Second Part.

WHEREAS, by the Power Commission Act passed by the Legislature of the Province of Ontario in the seventh year of the reign of His Majesty King Edward VII, and Chaptered 19, it was, amongst other things, enacted that any Municipal Corporation might apply to the Hydro-Electric Power Commission of Ontario for the transmission to such Corporation of electrical power and energy for the uses of the Corporation and the inhabitants thereof, for lighting, heating and power purposes.

AND WHEREAS, in accordance with this Act, the Commission on the 31st day of July, A.D. 1907, made a contract with the Company for a supply of power for the City of Ottawa, and a further agreement on the 6th day of December, A.D. 1910.

AND WHEREAS it is the desire of both parties thereto that it be declared that the said agreements of July 31st, 1907, and December 6th, 1910, be terminated and superseded by this agreement.

AND WHEREAS, certain Municipalities have applied to the Commission for a maximum price for such power, and for estimates on the cost of transmission to such Municipalities.

AND WHEREAS, the said estimates will be based in part upon this agreement and the Commission will be required to devote time and skill and expend moneys in preparation of such estimates, and such estimates are to be used for the purpose set forth in the said Power Commission Act and amendments thereto.

NOW THEREFORE THIS INDENTURE WITNESSETH that in consideration of the premises and of the mutual covenants and agreements herein, each of the said parties hereto agrees with the other as follows:—

1. The Company hereby agrees:—

(*a*) At the expiration of thirty (30) days' notice in writing from the Commission to the Company, to reserve and deliver when called for 5,000 horse power of electrical power to the Commission. Said notice shall be given not later than 1st January, 1914.

(*b*) At the expiration of thirty (30) days' notice in writing which may be given from time to time during the continuance of this agreement, to reserve and deliver to the Commission, additional electric power when called from time to time, in blocks of 500 horse power each, until the total amount so reserved and delivered, including hte said 5,000 h.p. shall amount to 20,000 horse power.

Should any such notices current at one time, calling for 1,000 horse power or more require the installation of additional generating capacity, then the Company shall not be liable for the non-delivery of such additional power under the notice, until six (6) months after the respective dates of such notices. The Company shall, however, continue to deliver the additional power or such portion thereof, as the capacity of its plant will permit.

(*c*) Save as hereinafter provided the Commission shall not be bound to take or pay for any additional electric power until notice shall have been given as above provided.

2. The Company hereby agrees to reserve and deliver and the Commission agrees to purchase and pay for the said electric power on the terms and conditions of this agreement.

3. The Commission agrees:—

To pay the Company for such power reserved or taken under this agreement, subject to the conditions or paragraph No. 4 and all other conditions of this agreement as set forth hereafter, it being understood and agreed that the power to be delivered shall refer to 11,000 volt power as required by the Commission from time to time, delivered as set forth in Paragraph No. 5 hereunder.

For 5,000 horse power taken or held in reserve, $14.00 per horse power per annum.

When the amount taken or held in reserve shall have increased to 8,000 horse power, then for each and every horse power taken $13.50 per horse power per annum.

When the amount taken or held in reserve shall have increased to 16,000 horse power, then for each and every horse power taken $13.00 per horse power per annum.

When the amount taken or held in reserve shall have increased to 12,000 horse power, then for each and every horse power taken $12.50 per horse power per annum.

When the amount taken or held in reserve shall have increased to 14,000 horse power, then for each and every horse power taken $12.00 per horse power per annum.

When the amount taken or held in reserve shall have increased to 16,000 horse power, then for each and every horse power taken $11.50 per horse power per annum.

When the amount taken or held in reserve shall have increased to 16,000 horse power, then for each and every horse power taken $11.00 per horse power per annum.

4. The Commission shall pay for three-fourths of the power ordered from time to time by the Commission and held in reserve for it as herein provided, whether it takes the same or not. When the greatest amount of power taken for any twenty consecutive minutes during any month shall exceed during the twenty consecutive minutes, three-fourths of the amount ordered by the Commission and held in reserve, then the Commission shall pay for this greatest amount during the entire month.

If the Commission during any month takes more than the amount of power ordered and held in reserve for it for twenty (20) consecutive minutes, the Commission shall pay for this greatest amount of power during the entire month. The taking of such excess shall thereafter constitute an obligation on the part of the Commission to pay for, and on the part of the Company to hold in reserve, one or more additional blocks of 500 h.p. in accordance with the terms and conditions of this contract.

When the power factor of the greatest amount of power taken for the twenty (20) consecutive minutes during the entire month falls below 90 per cent, the Commission shall pay for 90 per cent of the said power, divided by the power factor.

A composite daily curve, derived from daily load curves taken at the point of measurement in accordance with the method specified in Paragraph II, shall be compiled each month by the Commission, and these composite curves shall be used as a basis of payment for power during the month to which they apply.

The power shall be paid for monthly in gold coin of the present standard weight and fineness, twelve amounts in each year. The composite curve shall be forwarded to the Company by the fifth day of the succeeding month, and bills shall be rendered by the Company on the tenth day and paid by the Commission on or before the twentieth day of each month.

5. Under this agreement the point of delivery of power by the Company to the Commission shall be the terminals of the 11,000 volt disconnecting switches on the incoming lines on the property of the Commission or of the City of Ottawa, located within the limits of the said city and at a distance not greater than 1,000 feet from the Ontario shore of the Ottawa River, at or near Chaudiere Bridge.

The Commission shall arrange to provide and invest the Company with all the necessary rights, licenses and franchises, to enable the Company to construct and maintain poles, conduits, wires and other apparatus necessary to transmit and convey the said power within the limits of the City of Ottawa, to the said point of delivery. The Company shall not be responsible for any failure to deliver power due to the withdrawal or suspension or variation of the necessary permission from the Government of the Dominion of Canada to construct and maintain such poles, conduits, wires and other apparatus, upon any property under the control of the said Government.

6. This agreement shall remain in force for thirteen (13) years from the date of the expiration of the said first notice of thirty days. The Commission may at its option continue this agreement for one or two further consecutive terms of ten years each. The Commission may exercise the first of these options by first giving notice in writing of its intention to continue this agreement for the further term of ten years at least two years before the expiration of the first term of thirteen years, and if, pursuant to such notice, this agreement is continued beyond the said term of ten years, the Commission may exercise the second of these options by giving notice in writing of its intention to continue this agreement for the second term of ten years, at least two years before the expiration of the said first term of ten years.

7. The electric power herein contracted for shall be three phase, alternating, commercially continuous, twenty-four hour power every day in the year, except as provided in Paragraph 12 hereof.

8. It is agreed that maintenance by the Company of the agreed voltage at the agreed frequency subject to the variation mentioned in Clause 9 at the point of delivery, having regard to the distance of such point from the point of generation, shall constitute the delivery of all power involved herein and the fulfilment of all operating obligations hereunder, and that when voltage and frequency are so maintained, the amount of power, its fluctuations, load power, power factor, distribution as to phases, and all other electric characteristics and qualities are under the sole control of the Commission, its agents, customers, apparatus, appliance and circuits.

9. The Company shall at all times use first-class modern, standard, commercial Hydro-Electric power apparatus and plant, and the power shall be delivered at approximately 60 cycles per second and at approximately 11,000 volts. The Company shall use first-class, modern, standard, regulating apparatus and all due skill and diligence to maintain the power at such voltage and frequency. The maximum allowable variation at the power house under normal operating conditions shall be 2½ per cent above or below frequency and voltage herein specified. The Company shall use all due diligence to prevent greater variations than above provided for, caused by temporary abnormal conditions, and the Company shall not be in any way liable if such due diligence is used.

The Commission and its customers shall select and use transformers and all apparatus most suitable to receive the electric power produced by the apparatus of the Company, and the Commission's transmitting, transforming, translating, and all other apparatus and devices upon its circuits when receiving power from the Company shall be of modern standard design and construction, and shall be operated and maintained with special reference to securing the highest efficiency and most perfect operation consistent with commercial practice, not only of its own, but also of the apparatus of the Company when receiving power from the Company, and the Commission shall install upon and equip all circuits with such modern and approved protective devices as are necessary to afford the same measure of protection provided by the Company for its own circuits.

10. The power herein provided for shall be measured by suitable curve drawing meters, which shall be subject to tests as to accuracy by either party hereto. No allowance shall be made for loss in power transmission between the Company's power house and the said point of delivery. These meters shall be furnished and installed by the Company on the outgoing feeders in the power house of the Company. The Commis-

sion shall have the right to install instruments in the said power house to check the records of the Company's meters. The Company shall provide a suitable place in the power house for the proper installation of the above mentioned instruments and other such measuring apparatus as the Commission may deem necessary.

11. The Engineers of the Commission or one or more of them or any other person or persons appointed for this purpose by the Commission shall have the right from time to time during the continuance of this agreement to inspect the apparatus, plant and property of the Company and take records at all reasonable hours. If in the opinion of the Commission any such apparatus, device, wiring, plant or property is defective or is liable to cause interruption or trouble to or in connection with the supply of the said power, then the Company shall forthwith on request by the Commission's Engineer make such changes at the expense of the Company as may be required by the said Engineer. In the event of non-compliance by the Company with any requirement of the Commission, under this paragraph, thee Commission may, at its discretion, after notice has been given in writing, proceed to make such changes in accordance with the recommendation of said Engineer, and a sufficient sum to cover all costs in connection therewith shall be deducted from any moneys payable by the Commission to the Company under this agreement. Nothing contained in this paragraph shall limit or impair the rights of the Company to seek redress under Paragraph 17 hereof.

12. In case the Company shall at any time be prevented from delivering said power, or any part thereof, or in case the Commission shall at any time be prevented from taking the said power or any part thereof, by strike, lockout, riot, invasion, explosion, act of God, or the King's enemies, or any other cause reasonably beyond their control, then the Company shall not be bound to deliver such power during such time and the Commission shall not be bound to pay for such power during such time, but as soon as the cause of such interruption is removed, the Company shall, without any delay, deliver the said power as aforesaid and the Commission shall take the same and each of the parties hereto shall be prompt and diligent in removing and overcoming such causes of interruption.

13. In case the plant, apparatus, building or premises of the Company or any part thereof shall at any time during the continuance of this agreement be damaged or destroyed so as to prevent the Company from supplying the said power of the quantity hereinbefore provided for to the Commission, the Company shall use its best endeavor to procure the said supply of power for the Commission otherwise or elsewhere, and if the Company fails or neglects to procure such power for the Commission, then the Commission may with the approval of the Lieutenant-Governor-in-Council procure such power at reasonable rates and charge the same to the Company, and if the said power cannot be procured either by the Company or the Commission then the Commission may, with the approval of the Lieutenant-Governor-in-Council, terminate this agreement.

14. After the happenings of any of the events provided for in Paragraphs 12 and 13 hereof, power shall be delivered first for delivery to public utilities, whether the same are being supplied by the Commission or directly by the Company, said delivery to be *pro rata*, first for waterworks service, second for lighting, and third for railway service, after which power shall be delivered *pro rata* to the Commission and other customers of the Company.

15. If and so often as any interruption shall occur in the service of the Company due to any cause or causes other than those provided for by Paragraphs 12 and 13

hereof, the Company shall pay to the Commission as liquidated and ascertained damages, and not by way of penalty as follows:—

For any interruptions less than one hour double the amount payable for power which should have been delivered during the time of such interruption, and for any interruption of one hour or more the amount payable for the power which should have been delivered during the time of such interruption, and six times the last mentioned amount in addition thereto, and all moneys payable under this paragraph when the amount hereof is settled between the parties may be deducted from the moneys payable by the Commission to the Company under this agreement.

16. It is recognized by both the parties hereto that the state of the art of production, transmission and application of electrical energy is subject to constant advance, and that it is impossible by contract to cover all the requirements and conditions which time may develop, the Company and the Commission, with the approval of the Lieutenant-Governor-in-Council while adhering to the provisions of this agreement will at any time upon request of the other, take up and in good faith fairly consider, with the aid of the respective engineers, any feature of changes of the system as a whole or any modifications of any of the provisions hereof, provided it shall appear to the party to whom such request is made that compliance therewith shall tend to make this agreement more effective and to make the venture of each party more successful and certain, provided, however, that any such action or the failure on the part of either party to require of the exact conformity to the provisions of this agreement or any liberty or greater latitude beyond the provisions of this agreement allowed by either party to the other in course of the co-operation implied by the spirit of this agreement shall in no manner operate as or constitute a precedent or amend or change the obligations of the parties thereto.

17. It is agreed that in case any dispute shall arise relating to the question of the performance and fulfillment of any of the terms, provisoes or conditions of this agreement, or as to the method of accuracy of the measurement of the power, or as to any question which may arise under this agreement, the same shall be determined by two independent persons, one to be chosen by each of the parties of such dispute, and such persons before proceeding with the reference, shall appoint a third arbitrator to act with them, and the decision of the said three arbitrators or a majority of them shall be conclusive on both parties, except as hereinafter provided, and in case either of the said parties shall neglect or fail to appoint an arbitrator within thirty days after the request in writing by the other party then the arbitrator appointed by the other party may proceed alone and his award shall be conclusive on both parties except as hereinafter provided. The award shall be made within four months after the appointment of the first of such arbitrators, and in the event of the arbitrators appointed as aforesaid being unable or unwilling to agree upon a third arbitrator within two weeks after their appointment or the appointment of the one of them who was the last appointed, then such third arbitrator shall be chosen and appointed by the Chief Justice of Ontario, for the time being, or in the event of the said Chief Justice being ill, deceased, absent from the Province or otherwise unable or refusing to act, then such third arbitrator shall be appointed by any Judge of the Supreme Court of Judicature. It is agreed that there may be an appeal by either party from any decision or award of such arbitrators to the Supreme Court of Judicature in accordance with the provisions of the Arbitration Act in that behalf. No such appeal shall be carried beyond the decision of the Appellate Division for Ontario.

18. In case any Municipal Corporation which shall contract with the Commission for a supply of power or any person, firm or corporation, which shall contract with

any such municipal corporation or with the Commission for a supply of power furnished to the Commission by the Company, and such Municipal corporation, firm, person or Corporation would if the Company had made this contract directly with them, have had a right to recover such damages or commence any proceedings or any other remedy, the Commission shall be entitled to commence any such proceedings or bring action for or on behalf of such municipal corporation, person, firm or corporation and notwithstanding acts, decision or rule of law to the contrary the Commission shall be entitled to all the rights and remedies of such municipal corporation, person, firm or corporation, including the right to recover such damages, but no action shall be brought by the Commission until such municipal corporation, firm, person or corporation shall have agreed with the Commission to pay any costs that may be adjudged to be paid if such proceedings or action is unsuccessful. The rights and remedies of any such municipal corporation, person, firm or corporation shall not be hereby prejudiced.

19. Subject to the provisions of paragraph 13 of this Agreement, notwithstanding there may be difference between the parties hereto as to the supply or sufficiency of the said power, or the payment thereof, or any other questions whatsoever which may arise under this agreement, the Company shall continue to deliver and the Commission to pay therefor, and both parties shall continue to carry out the contract notwithstanding such differences and when the matters which may be so in issue shall be finally determined by the reference to arbitration in the manner provided by Paragraph 17 hereof, the parties shall deal with such matters according to the terms of the award which may be made upon such reference. It being the distinct agreement between the parties that there shall not be during the period of this agreement any stoppage or cessation in the supply of the said power or the payments therefor, but that the same shall be continued as if there was no such difference.

20. During the period of this Agreement, or extension thereof, the Company shall not directly or indirectly supply power to any municipality or person, firm or corporation therein, while such municipality, person, firm or corporation therein is supplied by the Commission, nor shall the Commission purchase or supply power from any other source than the Company to be used within a radius of five miles of the Company's Power House or within the limits of the City of Ottawa, or the suburbs thereof as now or hereafter may be established, except in the event of the Company not having power available to meet the requirements on notice of the Commission.

21. Notwithstanding anything hereinbefore contained this Agreement shall not come into operation until in addition to any other Order-in-Council, pursuant to said Act, an Order-in-Council has been passed and approved by the Lieutenant-Governor-in-Council expressly declaring that this Agreement shall from the date of such Order-in-Council be binding upon the Commission, but this shall in no way interfere with the Agreement contained in Paragraph 3 (*a*) and the Commission undertakes to do all things lawful in its power that may be needed to bring this Agreement into operation at as early a date as possible, and to procure the assent and declaration of the said Lieutenant-Governor-in-Council above referred to, and the said Company agrees to co-operate with the Commission by all means in its power to carry out the object of this Agreement.

22. AND IT IS HEREBY UNDERSTOOD AND AGREED that the said Agreement of 31st of July, 1907, and the further agreement of December 6th, 1910, between the parties hereto shall be terminated and superseded by this Agreement upon the expiration of the notice to be given pursuant to Clause 1 (*a*) hereof.

23. This Agreement shall extend to and be binding upon and enure to the benefit of the successors and assigns of the parties hereto.

IN WITNESS WHEREOF the Commission and the Company have respectively affixed their Corporate Seals and the hands of their proper officers.

SIGNED, SEALED AND DELIVERED
In the presence of:

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO.

(Sgd.) A. BECK,
Chairman.

(Sgd.) W. K. MCNAUGHT.

(Sgd.) W. W. POPE,
Secretary.

(Sgd.) H. S. HARRISON.

THE OTTAWA AND HULL POWER AND MF'G. CO., LTD.

(Sgd.) WM. C. EDWARDS,
President.

(Sgd.) R. BLACKBURN,
Sec.-Treas.

(Seal.) Ottawa and Hull Power and M'fg. Co., Ltd.
(Seal.) Hydro-Electric Power Commission of Ontario.

RIGHT OF WAY

High-Tension Lines

During the past year the right-of-way from Windsor to St. Thomas was practically completed. There are very few outstanding cases where the owner and the Commission have been unable to agree as to price. On completion of this section, the right of way staff, which consisted of a Chief Agent and four assistants was reduced to the Chief Agent and two assistants. It might be mentioned that in all the dealings on this section of the line, litigation has been absolutely avoided, neither has there been any arbitrations, which fact speaks for itself as to the manner in which the owners have been dealt with.

Owing to the rapid increase in the consumption of power by the municipalities, it was found necessary to duplicate the transmission line from Niagara Falls to Dundas, a distance of 50.02 miles. This was also found necessary owing to the fact that this is the main trunk line of the whole system, and the Commission felt it wise to minimize the danger of interruptions to the service. It was decided to purchase a 66 ft. strip of right-of-way on the same plan as that followed on the Windsor line, i.e., the land to be purchased outright and not on the easement plan. Some 250 owners had to be dealt with, all of which is proceeding satisfactorily. The original line between Niagara Falls and Dundas was run along the roads and the fronts of the farms and was purchased on the easements plan. In the case of this duplicate line, however, the towers were located at the back of the farms and the land was purchased outright. The office at St. Thomas was closed and one opened at St. Catharines, in order that the work might be facilitated.

Low-Tension Lines

During the past year approximately 260 miles of low-tension wood pole lines have been constructed, about 245 miles in the Niagara District and 15 miles in the eastern section of the Province. The right-of-way department has been engaged continuously in this connection, arranging pole and tree trimming rights, etc. These lines are purchased on the 30 year easement plan. Some 700 farmers have been dealt with, agreements taken and the consideration paid, all without litigation or arbitration. It is also necessary in many cases to obtain highway rights from the various Township Councils, all of whom have shown a willingness to assist the work of the Commission in every way.

CROSSINGS

During the past year it was found necessary to secure permission from the various steam and electric railway, telephone and telegraph companies and power companies, for the crossing of their lines by the various high and low-tension wires of the Commission. There were approximately 210 low-tension crossings and 200 high-tension crossings, all of which necessitated applications and blue prints being forwarded to the interested parties, and where they did not agree, to the Railway Board at Ottawa. The correspondence in this connection was exceptionally heavy, owing to the various demands made by the Railway Companies. In the few cases brought before the Board of Railway Commissioners, the Commission's plans were approved and the crossing ordered.

PURCHASE OF SYSTEMS

The past year was noteworthy for the fact that the Commission for the first time in its history became a producer of power, in addition to transmitting it, having purchased a site and developed power at Wasdell's Falls for the supply of the Beaverton-Canning district, and in order to supply Owen Sound and the surrounding district negotiations were entered into for the purchase of the plant of the Georgian Bay Power Company located at Eugenia Falls. It required considerable time to deal with the various bondholders, etc., and several meetings were held. However, the deal was finally closed and the plant taken over. The right-of-way department also arranged for the purchase of some 2,000 acres of land for flooding rights and additional land for a pipe line and site for a new power house.

The Commission also closed for the purchase of the plant of the Simcoe Railway and Power Company located at the Big Chute on the Severn River. After protracted negotiations, this matter was also completed. This plant is for the supply of Collingwood, Barrie, Midland, Penetanguishene and the surrounding district.

In connection with the Eugenia Falls proposition, it became necessary to close a number of roads through the Township of Artemesia, which was taken up with the Township Council and various owners and arrangements satisfactorily concluded.

RADIAL RAILWAYS

In accordance with the provisions of the Act the Municipalities of the Townships of Scarborough, Markham, Whitchurch, Pickering, Uxbridge, Whitby, Reach, the Towns of Newmarket, Uxbridge, Whitby, the Villages of Markham, Stouffville and Port Perry, took this question up actively, a number of meetings were held, and by-laws and contracts drafted and forwarded to the various municipalities for submission to the electors.

METER INSPECTION

A number of complaints having been received from the various Municipalities as to the charges for meter inspection by the Dominion Government, this matter was actively taken up with the Minister of Inland Revenue with the request that they either abolish or lower the rates for inspecting meters. No action has been taken as yet, but results are expected in the near future.

NEW OFFICE BUILDING

Owing to the rapid increase in the staff of the Commission, it was found that the present quarters were too congested, and the Board decided that an office building be erected. Various sites were examined and a number of offers considered. It was finally decided to build on University Avenue, and the deal was closed for part of the old Caer Howell property, during the latter part of the fiscal year.

During the past year, the Commission purchased from the Ontario Power Company the distribution systems and transformer stations in the Towns of Welland and St. Catharines. Titles were carefully searched, the transactions completed and the plants then turned over to the Towns to be operated by them.

The services of the Commission were called upon in some cases to adjust the rates of pay for employees of different systems in the various municipalities. Hearings were given and decisions made, all of which have proved eminently satisfactory to both parties.

SECTION II

TRANSMISSION SYSTEM

STEEL TOWER TRANSMISSION LINES

Surveys

Surveys completed during the fiscal year of 1914 were for the Niagara Duplication Line, from Niagara Falls to Dundas, and the Dundas-Hamilton Steel Pole Line. The former survey was begun in January, 1914, and completed, including the staking of towers and telephone line, in September. The Dundas-Hamilton line survey was commenced in September, 1914, and carried on at intervals to completion in October.

Niagara Duplication Route

Commencing at the Niagara Transformer Station, Lot 159, Township of Stamford, this line runs almost due west through the Townships of Stamford, Thorold, Pelham and Gainsboro to the Gainsboro-Caistor Township line a distance of 25.8 miles. In this section are crossed the Welland Canal, the Wabash and Welland Divisions of the Grand Trunk Railway, the Niagara and St. Catharines Electric Railway, the Toronto, Hamilton and Buffalo Railways, main line, the Dunnville, Beamsville and Welland Port and the Dunnville, Smithville Branch of the Toronto, Hamilton and Buffalo Railway, and the Ontario Power Co. and Toronto Power Co. lines in several places. At all of these points special construction is necessary to give the required clearances over all foreign lines.

At the Gainsboro-Caistor Township line, the line deflects to the right and runs in a northwesterly direction, approximately, along the centre line of Concession 6, Township of Caistor, a distance of 7.4 miles to the Caistor-Binbrook Township line, where it deflects one degree to the right and runs diagonally across the Townships of Binbrook and Glanford, a distance of 11.9 miles, to the Glanford-Ancaster township line. In this section the Grand Trunk Railway is crossed at a point about three miles south of Rymal.

At the Glanford-Ancaster Township line, the line deflects to the right and runs in a northerly direction through the Townships of Ancaster and West Flamboro, a distance of 4.93 miles to the Dundas Interswitching Station, Lot. 19, Concession 1, Township of West Flamboro. In this section the Hamilton-Brantford Electric Ry., the Hamilton-Dundas Electric Ry. and the Cataract Power Company high-tension line are crossed, necessitating special construction in each case.

The total length of this line is 50.03 miles.

Dundas-Hamilton Route

Commencing at the Dundas Interswitching Station the line runs southerly a distance of 1 mile to the intersection of Fifth Avenue of the McKittrick Survey; it then deflects to the east along Fifth Avenue a distance of 1.08 miles to the intersection of Paradise Road, Hamilton, and turning north follows this road a distance of .2 miles to Hunt Street, Hamilton, where it again deflects to the east along Hunt Street, a distance of .52 miles to the Dundern Transformer Station, Hamilton, the total length of the line being 2.8 miles.

Contracts for Material

NIAGARA DUPLICATION

On this line it was decided to use tandem steel tower construction similar to the Windsor line. No. 4/0 B. & S. gauge copper cable was specified for conductors and a standard span of 630 feet between conductor supports adopted.

Tenders were asked for the supply of the different kinds of transmission line material required and contracts were let to the following companies:

The Canadian Bridge Co., of Walkerville, for the supply of steel towers and footings.

The Galt Malleable Iron Co., for the supply of malleable iron clamps and yokes.

The Canadian Porcelain Co., of Hamilton, for the supply of Suspension Insulators.

The Ohio Brass Co., of Mansfield, Ohio, for the supply of Strain Insulators.

The Steel Company of Canada, Montreal, for the supply of 5/16 in. galvanized steel ground cable.

The Canada Wire and Cable Co., of Toronto, and the Northern Electric Co., of Toronto, the supply of No. 4/0 B. & S. gauge copper cable.

The Telephone line material was taken from the Commission's stores.

Organization

WINDSOR EXTENSION

The field organization was the same in 1914 as in 1913, and consisted of tower footing, tower assembling, tower erection, right-of-way clearing, fence and bridge gangs, on the transmission line, and digging, pole erection and stringing gangs on the telephone line. Early in March, 1914, insulator and cable erection gangs were added to the organization.

NIAGARA DUPLICATION

The organization for the Niagara Duplication was practically the same as for Windsor Extension, each gang as it finished work on the latter being transferred to the former line. The field headquarters were transferred from Chatham to Hamilton in June.

Material Erected on Windsor Extension

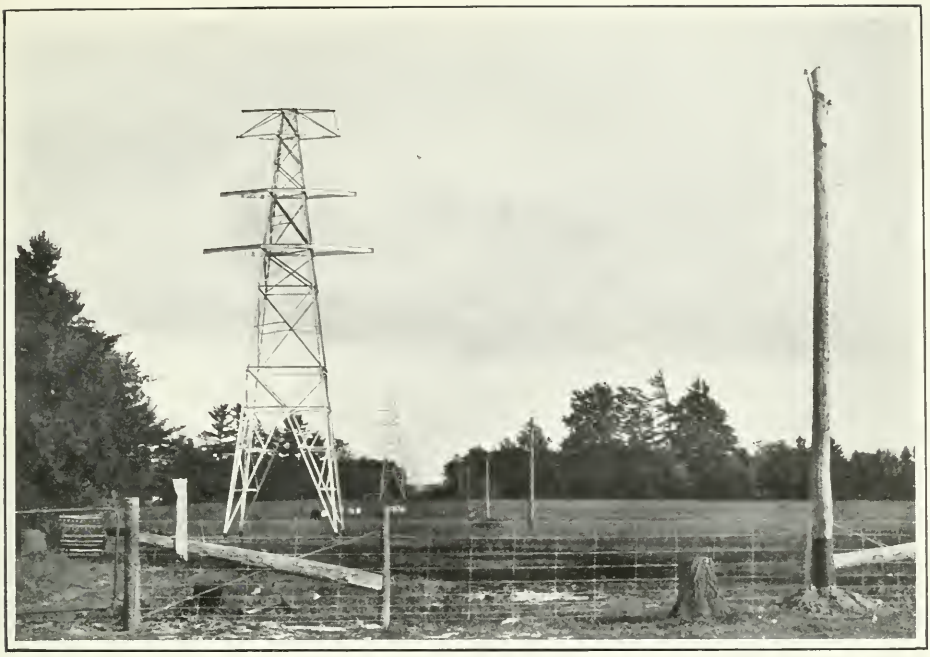
TRANSMISSION LINE

Steel Towers

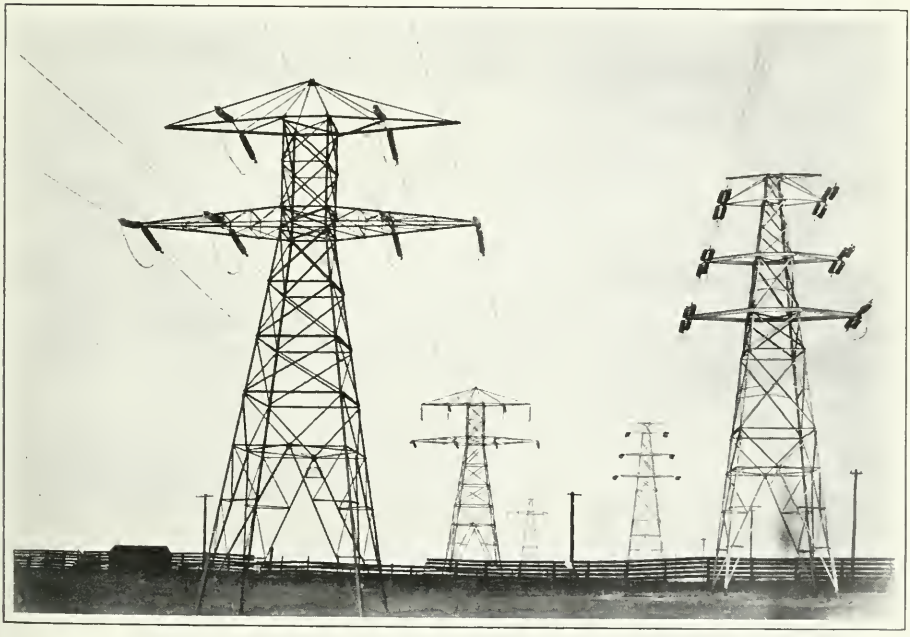
Kind of material	No.	Unit Weight lb.	Total Weight lb.
Standard Footings	727	723.6	526,066
Anchor Footings	133	1,486.8	197,743
Standard Towers	727	4,717	3,429,131
Anchor Towers	118	5,940	700,955
Transposition Towers	15	6,527	97,905
Grand Total Weight			4,951,800 lb.

Cable

Kind	Weight in lb.
No. 3/0 B. & S. Gauge Copper	1,715,489
5/16 in. Ground Wire	234,340



Standard Transmission Tower Section "A-A"



Transmission Line Crossing—Allanburg

Insulators

Location	No. Suspension Units	No. Strain Units
On Standard Towers	34,698	....
On Anchor Towers	3,504	9,720
On Transposition Towers	720	3,240
Totals	38,922	12,960

Small Hardware

Kind	Number
Strain Clamps	720
Suspension Clamps	4,890
Yokes	1,440
Double Ball Forgings	2,160
Standard Eyebolts	6,522
Hooks	528
Strain Shims	720
Suspension Shims	4,890
No. 3/0 B. & S. Gauge Copper Sleeves	1,545
Parallel Groove Clamps	720
Copper Sleeves for 5/16 in. Ground Wire	400

TELEPHONE LINE

No. 9 B. & S. Gauge Hard Drawn Copper (Wire Miles)	433
No. 9 Gauge Soft Copper Tie Wire (Wire Miles)	6
Cedar Poles	4,227

Material to be Used on Niagara Duplication

TRANSMISSION LINE

Steel Towers

Kind	No.	Unit Wt., lb.	Total Wt., lb.
Standard footings, Windsor Type	322	709.3	228,417
Standard footings, Niagara Type	48	777.2	37,305
L. A. footings, Windsor Type	30	1,492	44,755
H. A. footings, Windsor Type	12	1,492	17,904
H. A. footings, Niagara Type	29	847	24,563
12 ft. Extension Anchor Footings	6	847	5,082
28 ft. Extension Anchor Footings	2	847	1,694
Welland Canal, Anchor Footings	2	19.387	38,774
Standard Towers, Windsor Type	220	4,689.4	1,031,677
Standard Towers, Niagara Type	149	4,896.6	729,589
Line Anchor Towers, Windsor Type	7	6,199	43,390
Line Anchor Towers, Niagara Type	23	6,020	138,455
Heavy Anchor Towers, Niagara Type	32	6,761	216,352
Heavy Anchor Transposition	7	7,720	54,040
12 ft. Extension Tower	5	8,066	40,330
12 ft. Extension Transposition	1	8,869	8,869
28 ft. Extension Tower	1	10,554	10,554
28 ft. Extension Transposition	1	11,358	11,358
Welland Canal Towers	2	55.720	111,441
Special 8 ft. 6 in. Extension Standard	1	6,296.6	6,297
Special 8 ft. 6 in. Extension Anchor	2	9,530	19,060
Grand Total Weight			2,819,906

Cable

No. 4/0 B. & S. Gauge Copper Cable	1,076,693 lb.
5/16 in. Ground Wire	97,213 lb.

Insulators

Location	No. Suspension Units	No. Strain Units
On Standard Towers	17,760	....
On Anchor Towers	1,440	9,768
On Transposition Towers	432	2,160
Totals	19,632	11,928

Small Hardware

Kind	Number
Strain Clamps	624
Suspension Clamps	2,448
Yokes	1,224
Double Ball Forgings	1,836
Standard Eye Bolts	2,844
Hooks	228
Strain Shims	624
Suspension Shims	2,448
No. 3/0 B. & S. Gauge Copper Sleeves	775
Parallel Groove Clamps	600
Copper Sleeves for 5/16 in. Ground Wire	150

TELEPHONE LINE

No. 9 B. & S. Gauge Hard Drawn Copper (Wire Miles)	88
No. 9 B. & S. Gauge Soft Copper Tie Wire (Wire Miles)	0.75
Cedar Poles	1,405

Progress of Construction

WINDSOR EXTENSION

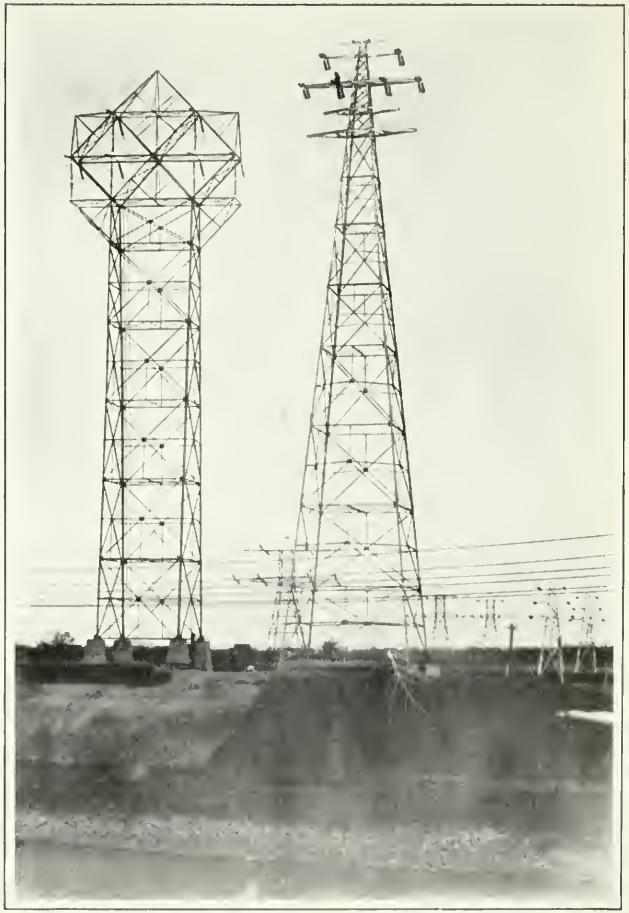
The work of excavating and setting tower footings begun in July, 1913, wa completed November 8th of the same year. Later, in March and April, 1914 it was found necessary to do considerable concrete work at Anchor footings o account of the exceptionally heavy rains that fell late in the fall of 1913 an early in the following spring. These rains kept the earth so wet and mucky tha the earth footings had no chance to set properly, and it was considered advisabl to place concrete around them so that cable stringing might be proceeded with.

Tower assembling and erecting begun in October, 1913, was completed Marc 26, 1914, an average of 8 towers having been assembled and erected complet per day.

Erection of insulators commenced on March 4, 1914, was completed on Jul 28th: the stringing of the No. 3/0 B. & S. gauge copper cable begun March 1 1914, was completed on August 1st, and the line was immediately turned ov for operation.

Work on the telephone line begun early in August, 1913, was completed i the following March; the digging of holes on March 15th; pole erecting on Marc 14th and stringing of wire and completion of line on March 18th.

Welland Steel Pole Line



Welland Canal Crossing

NIAGARA DUPLICATION

Excavation and setting of footings commenced on June 23, 1914, was completed on Oct. 30, 1914, with the exception of the concrete footings for the Welland Canal crossing towers. There are 399 earth, and 50 concrete footings in this section, exclusive of the two Welland footings. This work was carried on during the dry summer months, and very little difficulty was experienced with water. Excavating was practically all through stiff clay, and very little shoring was necessary. Rock was encountered at only one point.

Tower assembling was commenced on August 13, 1914, and the first tower erected on August 17th.

Erection of insulators was begun on October 20th and stringing of the No. 4/0 B. & S. gauge copper cable on October 22nd.

A two wire telephone line for this section was built on the same right-of-way as the transmission line, the excavation work being commenced on August 26th; erection of poles on Sept. 3rd, and stringing of wire on Sept. 14th, 1914. This work was all completed on October 15th.

Work Completed

The construction work completed up to October 31, 1914, may be summarized as follows:

WINDSOR EXTENSION

Transmission Line

Section L. St. Thomas to Chatham—58.04 miles.

Footings set complete	76
Towers erected complete	486
Power Cable erected (wire miles)	350
Ground cable erected (wire miles)	116

Section M. Chatham to Walkerville Jct.—44.77 miles.

Towers erected complete	322
Power cable erected (wire miles)	270
Ground cable erected (wire miles)	90

Telephone Line

Section L.

Poles erected	2,378
Telephone wire strung (wire miles)	232

Section M.

Poles erected	47
Telephone wire strung (wire miles)	128

NIAGARA DUPLICATION

Section A-A. Niagara Falls to Dundas—50.03 miles.

Transmission Line

Earth footings set complete	399
Concrete footings complete	50
Towers assembled	330
Towers erected	313
Insulator units erected	552
Power cable erected (wire miles)	27
Ground cable erected (wire miles)	9

Telephone Line

Poles erected	1,405
Telephone wire strung (wire miles)	88

Special Construction

On account of the work of deepening and widening the Welland Canal being carried on by the Dominion Government, it was necessary to lengthen the spans across the Canal from 407 to 532 ft. To do this one standard tower was removed from the transmission line, one anchor tower was moved 45 ft. and the two high towers supporting the Canal crossing span was moved, one 63 ft. and the other 62 ft.

The important part of this construction was the moving of the two latter towers. Each weighed twenty-five tons and was supported on a heavy reinforced concrete footing. The overall height was 168 feet. For many reasons it was decided to move these towers standing and for this purpose heavy timber skidways were built, the towers well guyed, and then pulled along the skidways to the new concrete foundations.

In order to ensure continuous power during this work, two temporary lines were built, one on the northerly side of the crossing to carry circuit No. 1 and the other on the southerly side for circuit No. 2. These two crossings were made far enough apart to allow room for the largest lake vessel, and by this means a boat could pass through with very little delay and without having a complete shut-down on the power circuits.

This work was done early in the year of 1914, and although inclement weather prevailed, such progress was made that little remained to be done when navigation opened and only a few boats passed before the crossing was completed in the early part of May.

STATION EQUIPMENTS AND BUILDINGS

The stations and building extensions referred to in the last report were completed and placed in service during the year. The following Distributing Stations have been constructed, viz.: Cheltenham, Fergus, Elora, Woodbridge, Beaverton, Cannington and Winchester and distributing stations are under construction at Lucan, Embro, Waterford, Drumbo, Ayr, Wallaceburg, Tilbury, Dresden, Port McNicoll, Waubaushene, and Brockville. Engineering for several municipal stations has been carried on, including Windsor, Walkerville, Strathroy, Simcoe and Dundas.

Considerable study has been given the standardization of distributing stations, and standard designs have been prepared for stations of various voltages and capacities.

The Wasdell's Falls generating station was placed in service and a contract made for the generators for the Eugenia Falls generating station.

Specifications have been prepared in respect of substation equipment for the London and Port Stanley Railway electrification; these, with minor changes, will apply to other roads which may be constructed or electrified.

The tables which follow give general information on the various stations, and a diagram of the Niagara system is included, which shows the municipalities served from each transformer station.

Niagara System

NIAGARA TRANSFORMER STATION

Building Extension

Messrs. Wells & Gray, Toronto, were the successful bidders for the extension which was described in last report. The roof was finished early this spring, and the contract, including concrete bus structure, etc., was finished in August.

There has been constructed and placed in service a second sprinkling tank, which is about 60 feet by 80 feet by 6 feet deep and made of concrete. This tank is used for cooling and circulating water from the transformers in the 1913 station extension. The water is sprayed into the tank and then pumped back through the transformers again.

Additional High-Tension Equipment

The 110,000-volt apparatus for the fifth bank of three-phase, 3,500 kv-a. transformers and two lines has been installed and will be placed in service on November 4th, 1914.

ntermediate-Tension Equipment

The two 46,000-volt, 10,500-kv-a. transformer banks and three of the four 46,000-volt lines mentioned in the last report are now in use, while switching equipment has been installed for two lines as "spares." The lines are brought along the south end of the station to a 90 deg. angle, double tower, steel structure, and from here turned north to single towers, one of which is located opposite each entrance, and from there carried to wall-bracket insulators placed beneath concrete hoods which are provided to protect the wall entrance bushings.

Table No. 1

TRANSFORMER AND DISTRIBUTING STATION CAPACITIES*

Total capacity, 193,840 Kv-a.

Station	Voltage	Transformers Installed		Transformers Ordered		Total Station Capacity Kv-a.	System Capacity Kv-a.
		Mfr.	Kv-a.	Mfr.	Kv-a.		
NIAGARA SYSTEM	25-Cycle						
1. Niagara Transformer Station	12,000—110,000	C.W.Co.	56,000	.....	.....	.....	
	12,000— 46,000	C.G.E.Co.	21,000	C.G.E.Co.	3,500	80,500	
2. Dundas Transformer Station	110,000— 13,200	C.G.E.Co.	7,500	.....	.....	7,500	
Caledonia Dist. Station	13,200— 2,300	P.T.Co.	450	.....	.....	450	
Waterdown " "	13,200— 2,300	C.C.W.Co.	225	C.G.E.Co.	450	450	
Hagersville " "	13,200— 4,000	C.W.Co.	225	.....	.....	225	
3. Toronto Transformer Station	110,000— 13,200	C.G.E.Co.	25,000	.....	.....	25,000	
4. London Transformer Station	110,000— 13,200	C.G.E.Co.	5,000	C.G.E.Co.	3,750	8,750	
Dorchester Dist. Station	13,200— 4,000	M.E.Co.	75	.....	.....	75	
Lucan " "	13,200— 4,000	.....	.....	C.G.E.Co.	225	225	
5. Guelph Transformer Station	110,000— 13,200	C.G.E.Co.	3,000	.....	.....	3,000	
Acton Dist. Station	13,200— 2,300	S.Co. of C.	225	.....	.....	225	
Georgetown Dist. Station	13,200— 4,000	C.W.Co.	225	.....	.....	225	
Rockwood " "	13,200— 2,300	C.G.E.Co.	75	.....	.....	75	
Cheltenham " "	13,200— 575	C.G.E.Co.	225	.....	.....	225	
Fergus " "	13,200— 2,300	C.G.E.Co.	225	.....	.....	225	
Elora " "	13,200— 2,300	C.W.Co.	225	.....	.....	225	
6. Preston Transformer Station	110,000— 6,600	C.G.E.Co.	3,000	.....	.....	3,000	
Breslau Dist. Station	6,600— 2,300	C.W.Co.	225	.....	.....	225	
7. Berlin Transformer Station	110,000— 13,200	C.G.E.Co.	3,000	.....	1,500	4,500	
New Hamburg Dist. Station	13,200— 2,200	P.E.Co.	225	.....	.....	225	
Baden " "	13,200— 2,300	P.E.Co.	225	.....	.....	225	
Elmira " "	13,200— 4,000	C.W.Co.	225	.....	.....	225	
8. Stratford Transformer Station	110,000— 13,200	C.G.E.Co.	3,000	.....	.....	.....	
	110,000— 26,400	C.W.Co.	5,000	.....	.....	8,000	
Tavistock Dist. Station	13,200— 4,000	.....	.....	C.W. Co.	225	225	
9. St. Mary's Transformer Station	110,000— 13,200	C.G.E.Co.	3,000	.....	.....	3,000	
St. Mary's Cement Dist. Station	13,200— 575	C.G.E.Co.	1,500	.....	.....	1,500	
10. Woodstock Transformer Station	110,000— 13,200	C.G.E.Co.	3,000	.....	.....	3,000	
Norwich Dist. Station	13,200— 2,300	S.Co. of C.	150	.....	.....	150	
Beachville " "	13,200— 2,300	S.Co. of C.	150	.....	.....	150	
Embro " "	13,200— 4,000	.....	.....	C.G.E.Co.	225	225	
11. St. Thomas Transformer Station	110,000— 13,200	C.G.E.Co.	3,000	.....	.....	3,000	
Port Stanley Dist. Station	13,200— 2,300	S.Co. of C.	150	.....	.....	150	

12. Cooksville Transformer Station	110,000— 13,200	C.G.E.Co.	5,000			5,000	
Mimico Dist. Station	13,200— 2,300	C.C.W.Co.	450			450	
Port Credit Dist. Station	13,200— 2,300	C.G.E.Co.	225			225	
Cooksville " "	13,200— 2,300	P.E.Co.	40			40	
Streetsville " "	13,200— 4,000	C.G.E.Co.	225			225	
Woodbridge " "	13,200— 4,000	C.G.E.Co.	225			225	
Etobicoke " "	13,200— 2,300			C.G.E.Co.	450	450	
13. Brant Transformer Station	110,000— 26,400	C.W.Co.	5,000			5,000	
Waterford Dist. Station	26,400— 2,300			C.W.Co.	225	225	
Drumbo " "	26,400— 4,000			C.G.E.Co.	225	225	
Ayr " "	26,000— 4,000			C.G.E.Co.	225	225	
14. Kent Transformer Station	110,000— 26,400	C.W.Co.	5,000			5,000	
Wallaceburg Dist. Station	26,400— 4,000			C.G.E.Co.	450	450	
Tilbury " "	26,400— 4,000			C.G.E.Co.	300	300	
Dresden " "	26,400— 4,000			C.W.Co.	225	225	
15. Essex Transformer Station	110,000— 26,400	C.W.Co.	10,000			10,000	
							183,440
SEVERN SYSTEM.	60-Cycle						
Penetang Dist. Station	22,000— 2,200	C.C.W.Co.	600			600	
Barrie " "	22,000— 2,300	C.G.E.Co.	700			700	
Collingwood Dist. Station	22,000— 2,300	C.G.E.Co.	750			750	
Coldwater Dist. Station	22,000— 2,300	C.G.E.Co.	225			225	
Elmvale " "	22,000— 2,300	C.W.Co.	225			225	
Stayner " "	22,000— 4,000	C.W.Co.	300			300	
Port McNicoll Dist. Station	22,000— 2,300			C.G.E.Co.	50	50	
Waubaushene Dist. Station	22,000— 2,300			C.G.E.Co.	50	50	
							2,900
WASDELL'S FALLS SYSTEM.	60-Cycle						
Generating Station	2,300— 22,000	C.W.Co.	1,050			1,050	
Beaverton Dist. Station	22,000— 4,000	C.W.Co.	300			300	
Cannington " "	22,000— 4,000	C.W.Co.	300			300	
							1,650
ST. LAWRENCE SYSTEM.	60-Cycle						
Prescott Dist. Station	26,400— 2,300	C.G.E.Co.	450			450	
Winchester Dist. Station	26,400— 4,000	C.G.E.Co.	150			150	
							600
PORT ARTHUR SYSTEM.	60-Cycle						
Port Arthur Dist. Station	22,000— 2,200	S.Co, of C.	5,250			5,250	5,250

*Spare transformers are included in the above

Mfr. —Manufacturer or Agent.
C.G.E. Co. —Canadian General Electric Co., Peterboro, Ont.
C.W. Co. —Canadian Westinghouse Co., Hamilton, Ont.
C.C.W. Co.—Canadian Crocker Wheeler Co., St. Catharines, Ont.
M.E. Co. —Maloney Electric Co. of Canada, Ltd., St. Catharines, Ont.
P.E. Co. —Packard Electric Co., St. Catharines, Ont.
S. Co. of C.—Siemens Co. of Canada, Toronto, Agents of Company in London, Eng.
P.T. Co. —Pittsburgh Transformer Co., Pittsburgh, Pa.
S.U.C. Co. —Standard Underground Cable Co., Hamilton, Ont.
G.M.G. Co.—G. M. Gest Co., Montreal, Que.
H.E. Co. —Harland Engineering Co., Toronto, Ont.

Table No. 2

STATION TRANSFORMERS PURCHASED FOR MUNICIPALITIES AND COMMISSION DURING FISCAL YEAR ENDING OCTOBER 31st, 1914

Station	Cycle	Voltage	Mfr.	No.	Capacity Kv-a.	Total Kv-a.
Niagara Falls Trans. Station...	25	13,200-46,000	C.G.E.Co.	1	3,500	3,500
	25	13,200- 575	C.G.E.Co.	3	150	450
Dundas Transformer Station — Waterdown Dist. Station.....	25	13,200- 2,300	C.G.E.Co.	3	150	450
Toronto Transforming Station....	25	13,200- 575	P.E.Co.	3	100	300
London Transformer Station						
Strathroy Municipal Station...	25	13,200- 2,300	C.G.E.Co.	3	75	225
Lucan Dist. Station	25	13,200- 2,300	C.G.E.Co.	3	75	225
Guelph Transformer Station—						
Corporation of Guelph	25	13,200- 2,300	C.G.E.Co.	1	225	225
Fergus Dist. Station	25	13,200- 2,300	C.G.E..Co.	3	75	225
Elora " "	25	13,200- 2,300	C.W.Co.	3*	75	225
Cheltenham Dist. Station.....	25	13,200- 575	C.G.E.Co.	3*	75	225
Preston Transformer Station—						
Corporation of Galt	25	13,200- 2,200	M.E.Co.	3	250	750
Berlin Transformer Station—						
Waterloo Corporation	25	13,200- 2,300	C.W.Co.	2	150	300
Stratford Transformer Station—						
Tavistock Dist. Station.....	25	13,200- 2,300	C.W.Co.	3	75	225
Woodstock Transformer Station.						
Embro Dist. Station	25	13,200- 2,300	C.G.E.Co.	3	75	225
Cooksville Transformer Station—						
Mimico Dist. Station	25	13,200- 2,300	C.C.W.Co.	3	150	450
Etobicoke Dist. Station.....	25	13,200- 2,300	C.G.E.Co.	3	150	450
Woodbridge " "	25	13,200- 2,300	C.G.E.Co.	3	75	225
Brant Transformer Station—						
Simcoe Municipal Station.....	25	26,400- 2,300	C.W.Co.	3	100	300
Waterford Dist. Station.....	25	26,400- 2,300	C.W.Co.	3	75	225
Drumbo. Dist. Station	25	26,400- 2,300	C.G.E Co.	3	75	225
Ayr Dist. Station.....	25	26,400- 2,300	C.G.E.Co.	3	75	225
Kent Transformer Station—						
Wallaceburg Dist. Station.....	25	26,400- 2,300	C.G.E.Co.	3	150	450
Tilbury District Station	25	26,400- 2,300	C.G.E.Co.	3	100	300
Dresden Dist. Station.....	25	26,400- 2,300	C.W.Co.	3	75	225
Essex Transformer Station—						
Walkerville Municipal Station .	25	26,400- 2,300	C.C.W. Co.	3	750	2,250
Windsor " "	25	26,400- 2,300	C.G.E.Co.	2	750	1,500
Port McNicoll Dist. Station.....	60	22,000- 2,300	C.G.E.Co.	2	25	50
Waubaushene " "	60	22,000- 2,300	C.G.E.Co.	2	25	50
Beaverton " "	60	22,000- 2,300	C.W.Co.	3	100	300
Cannington " "	60	22,000- 2,300	C.W.Co.	3	100	300
Winchester " "	60	26,400- 2,300	C.G.E.Co.	3	50	150
Brockville Municipal Station	60	26,400- 2,300	C.G.E.Co.	3	200	600
Corporation of Port Arthur.....	60	22,000- 2,300	C.G.E.Co.	4	400	1,600

*Transferred from another station.

Total Kv-a., 17.425

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Table No. 3

MISCELLANEOUS EQUIPMENT PURCHASED FOR MUNICIPALITIES AND COMMISSION DURING FISCAL YEAR ENDING OCTOBER 31, 1914

Station	Mfr.	Voltage	Description
Niagara System		25-Cycle	
Niagara Transformer Station	S.U.C. Co.	13,200.....	8,000 ft., 300,000 c.m. P.I.L.C. Cable
	G.M.G. Co.	13,200.....	22,000 duct ft. of conduit system
Union Carbide Co.	C.W. Co...	46,000.....	Metering equipment.
Electric Steel and Metal Sta...	C.G. E. Co.	46,000.....	Metering and switching equipment.
Dundas Transformer Station—			
Dundas Municipal Station.	C.W. Co...	13,200-2,300	Switching equipment.
Toronto Transformer Station	C.G.E. Co.	13,200.....	Switchboard panels.
London Transformer Station	C.G.E. Co.	13,200.....	Switching equipment for 2 feeders.
	C.G.E. Co.	110,000.....	H.T. switch. equip. for 1 trans.bank.
London and Port Stanley Ry.	C.G.E. Co.	13,200-1,500	4-500 kv-a. rotary converters, transformers and switching equipm't.
London Street Ry.	C.G.E. Co.	13,200- 600	2-500 kv-a. rotary converters, transformers and switching equipm't.
Strathroy Municipal Station...	C.G.E. Co.	13,200-2,300	Switching equipment.
Lucan Dist. Station	C.W. Co...	13,200-2,300	" "
Guelph Transformer Station	C.G.E. Co.	13,200.....	Switching equipment for 3 feeders.
Cheltenham Dist. Station.	C.W. Co...	13,200- 575	Switching equipment.
Fergus Dist. Station	C.W. Co...	13,200-2,300	" "
Elora Dist. Station	C.W. Co...	13,200-2,300	" "
Preston Transformer Station—			
Preston Municipal Station.	C.W. Co...	6,600.....	Switching equipment for 1 feeder.
Stratford Transformer Station—			
Tavistock Dist. Station	C.W. Co...	13,200-4,000	Switching equipment.
Woodstock Transformer Station—			
W. T. V. & I. Ry.	C.W. Co...	13,200.....	Metering equipment.
Embro Dist. Station	C.W. Co...	13,200-4,000	Switching equipment.
Cooksville Transformer Station—			
Mimico Dist. Station	C.G.E. Co.	2,300.....	Switching equipment for 1 feeder.
Etobicoke Dist. Station	C.G.E. Co.	13,200-2,300	Switching equipment.
Woodbridge Dist. Station	C.W. Co...	13,200-4,000	" "
Brant Transformer Station—			
Simcoe Municipal Station	C.W. Co...	26,400-2,300	Switching equipment.
Waterford Dist. Station	C.W. Co...	26,400-2,300	" "
Drumbo Dist. Station	C.W. Co...	26,400-4,000	" "
Ayr Dist. Station	C.W. Co...	26,400-4,000	" "
Kent Transformer Station—			
Wallaceburg Dist. Station	C.W. Co...	26,400-4,000	Switching equipment.
Tilbury Dist. Station	C.W. Co...	26,400-4,000	" "
Dresden Dist. Station	C.W. Co...	26,400-4,000	" "
Essex Transformer Station—			
Walkerville Municipal Station	C.W. Co...	26,400-4,000	Switching equipment.
	C.G.E. Co.	4,000.....	50 kv-a. potential regulator.
Windsor Municipal Station	C.W. Co...	26,400-4,000	Switching equipment.
	C.G.E. Co.	4,000.....	90 kv-a. potential regulator.
Severn System		60-Cycle	
Barrie Dist. Station	.....	22,000.....	Switching equipment for No. 2 line.
Collingwood Dist. Station	.....	22,000.....	" " " "
Stayner Dist. Station	C.W. Co...	4,000.....	Switching equipment for 1 feeder.
Port McNicoll Dist. Station	C.G.E. Co.	22,000-2,300	Switching equipment.
Waubaushene Dist. Station	C.G.E. Co.	22,000-2,300	" "
Wasdell's Falls System			
Beaverton Dist. Station.	C.W. Co...	22,000-4,000	" "
Cannington Dist. Station.	C.W. Co...	22,000-4,000	" "
Eugenia System		60-Cycle	
Eugenia Falls Generating Station.	C.W. Co...	4,000.....	Two 1,410 kv-a. 3-phase generators.
St. Lawrence System		60-Cycle	
Winchester Dist. Station	C.W. Co...	26,400-4,000	Switching equipment.
Port Arthur System		60-Cycle	
Corporation of Port Arthur	C.W. Co...	22,000.....	Switching equipment for 1 feeder.

NOTE—The above only includes the more important equipment.

A contract was placed with the Canadian General Electric Co. on September 24th to furnish a 3,500-kv-a., 13,200/46.000-volt transformer (a duplicate of those already supplied) to be used as a "spare" in connection with the two present banks. The contract specifies delivery on or before February 24th, 1915.

Low-Tension Feeders

A "spare" feeder installed under contract by the Canadian British Insulated Co. of Montreal was placed in service last April. This is the fifth three-phase, 300,000 c.m., lead-covered, paper insulated, cable feeder which has been installed in the Murray Street duct line from the Ontario Power Co. Five more feeders of the same capacity have been purchased and are now being installed in duct line No. 2. Three of these feeders are being supplied and installed by the Canadian British Insulated Co. and the other two by the Standard Underground Cable Co. of Hamilton, Ont. Two are to be used to supply the two 10,500-kv-a., 46,000-volt transformer banks. One of these was placed in service on October 29th, 1914. The third will supply the 10,500-kv-a., 110,000-volt transformer bank, and is to be placed in service on November 4th, 1914; while the fourth and fifth feeders are to be used as "spares" until another 110,000-volt transformer bank is installed, when one of them will be employed to supply this new transformer bank.

Tenders have been received for two sets of 12,000-volt switching equipments for the fourth and fifth feeders which were laid in duct line No. 2. Each of these sets are to consist of a feeder reactance oil circuit-breaker, disconnecting switches, bus, etc., similar to those already supplied for the other feeders recently installed.

Three 150-kv-a., 12.000/575-volt, single-phase, self-cooled transformers have been purchased from the Canadian General Electric Co. for heating the Niagara station. These transformers will also be used in connection with two 50 h.p., three-phase motors employed to drive circulating water pumps for the transformers. One of these pumping sets has already been delivered by the Harland Engineering Co. of Toronto. Ten-kw., 550-volt, three-phase electric radiators are at present under construction at the Commission's machine shop on Strachan Avenue, Toronto. These are to be used to heat the 1913 extension and the old station building. The extension has three electric circuits controlled from a panel. The heating transformers are located in the basement. One circuit is carried in conduit on the east basement wall, the second on the west basement wall, and supply the radiators beneath the windows on the main floor and in the basement. The third circuit runs to the switchboard-room. Each radiator is provided with two-heat-regulation, controlled by knife switches located on a panel mounted on the radiator frame. The old station will also be provided with a heating circuit installed along the west basement wall which will be employed this winter, so that the steam heating previously used will only be required during extremely cold weather.

No. 2 Conduit Line

The last report referred to a second and independent conduit system from the Ontario Power Co., known as the Dixon Street conduit line. Later it was decided to purchase a private right-of-way running approximately in a straight line between the transformer station of the Commission and the distributing station of the Ontario Power Co. The saving effected by the shorter duct run and cable lengths more than compensates for the cost of the property which it was necessary to purchase, and the property would also be available for another duct run should it be required.

Specifications were issued for this duct line and tenders requested. The contract was awarded to the G. M. Gest Co., of Montreal. The duct line is about 1,828 feet long and provided with eight manholes; the longest distance between manholes being 307 feet. The line consists of 12 ducts, two wide and six high, purchased by the Commission from the Clay Products Co., of Brazil, Indiana. These ducts have a minimum square bore of 3⅝ in. with a ¾ in. wall, and after they were laid a 3⅜ in. square steel mandrel 20 in. long was drawn through each duct and a No. 10 B.W.G. iron wire was left in the ducts to be used as a fishing wire when the cables were installed. The ducts were laid closely together and surrounded by 3 inches of concrete on the sides and top and a 4-in. concrete base.

The manholes were constructed of concrete with 7-ft. headroom. The tops consist of 6-in. reinforced concrete slabs which support the cast iron manhole frames and covers. This light manhole top construction is made possible by the location of the manholes, which are, as previously mentioned, on private property, where there is no heavy traffic. Each manhole has five 1½-in. by 9-in. shelves on each side for supporting the cables. The spacing between the shelves is 8 in. In some cases 3-in. deep recesses were left in the manhole walls, and the concrete slabs grouted into the recesses after the form work for the walls had been removed, while in other cases the slabs were poured with the walls. This construction assures exceptionally neat appearing manholes. About 12 feet from manholes the ducts commence to change from the close centre to centre spacing of 5½-in. to a spacing of 9½-in. where they enter the manhole. This allows the cable to leave the duct at the level of and in line with the manhole shelves.

Ten of the twelve ducts are to be used for five power feeders of two cables each, while the other two ducts are to be employed for other small cables that may be required, such as for instance, telephone, lighting, etc.

The system is drained by means of two 4-in. agricultural tile pipes, laid at each side of the duct run and entering each manhole on a level with a 3-in. gutter in the floor, so that they also drain the manholes. No. 1 and No. 8 manholes are connected to separate drainage systems. In this way the whole system of eight manholes is drained with only two sewer connections.

Union Carbide Company

The Union Carbide Company has installed a plant at Welland, Ontario, and is being supplied with three-phase power at 46,000 volts over three transmission lines from the Niagara station.

Their present equipment consists of Westinghouse switching apparatus for controlling four incoming three-phase, 46,000-volt lines, and five feeders. One feeder supplies three Canadian General Electric, single-phase, 400-kv-a., 26,400/220-volt service transformers. Three feeders are connected to Canadian Crocker Wheeler three-phase, 4,500-kv-a. transformers, and the fifth feeder supplies three Canadian General Electric, single-phase, 3,000-kv-a. transformers. The connections between the switching equipment and transformers consist of three-phase, 46,000-volt paper insulated, lead-covered cables.

The Union Carbide Company submitted their layout drawings to the Commission for approval. The Commission purchased from the Canadian Westinghouse Company the following equipment erected in the Union Carbide Company's station for metering, at the incoming lines, the power used by the Company:—Nine 46,000-volt current transformers (3 for each of the three lines), and with "secondaries" connected in parallel on the one set of meters; four potential transformers (2 for each of two busses): one graphic recording wattmeter; one graphic

recording power factor meter; one indicating wattmeter, and potential change-over switch, test links and panel. This equipment was placed in service on July 16, 1914.

Electric Steel and Metals Station

The Electric Steel and Metals Company has erected a plant at Welland, Ontario, and have contracted to purchase power at 46,000 volts. The substation was built of brick by the Electric Steel and Metals Company as an extension to their plant building. The equipment consists of one incoming three-phase, 46,000-volt line; one 900-kv-a., 46,000/100-volt, three-phase, water-cooled, Canadian Crocker Wheeler transformer for the electric furnace; three single-phase, 100-kv-a., 26,400/550-volt self-cooled, Westinghouse transformers for plant service, together with the necessary switching equipment. The oil circuit breakers between the 46,000-volt bus and the transformers are hand-operated and controlled from the furnace-room.

The metering equipment, which is the property of the Welland Hydro-Electric Commission, consists of two 46,000-volt current transformers, two 46,000-volt potential transformers with disconnecting switch fuses, one graphic recording wattmeter, one graphic recording power-factor meter, three ammeters, one voltmeter, together with test links, panel, etc. The 46,000-volt switching equipment was installed by the Commission while the transformers and low tension connections were installed by the Electric Steel and Metals Company. The station will be placed in service early in November.

DUNDAS TRANSFORMER STATION

High-Tension Extension

All the equipment mentioned in the last report as being supplied by the Canadian Westinghouse Company for the control of the new line to St. Thomas and the two new lines to Niagara was completely installed in August and the line to St. Thomas placed in operation.

Additional Feeders

The two new 13,200-volt feeders for Hamilton, described in the last report, will be completely installed by the end of November. The concrete structure has already been built and the apparatus delivered ready for installing. (See diagram of Niagara System for the several places supplied at 13,200 volts from this station.)

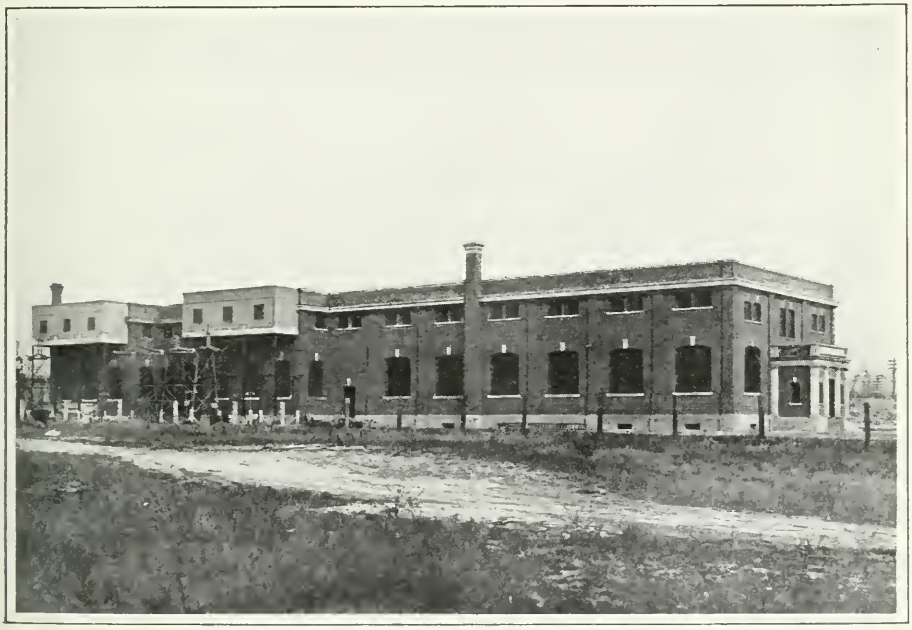
Waterdown Distributing Station

This station has two 2,300-volt, three-phase feeders, one to the village of Waterdown and one to the Dominion Sewer Pipe Company. The load on the latter has so increased during the last year that it was necessary to increase the transformer capacity from three 75-kv-a., single-phase transformers to three 150-kv-a. transformers, which are to be supplied by the Canadian General Electric Company and will be installed as soon as received. The 75-kv-a. transformers are to be transferred to another station.

Corporation of Dundas

The municipality of Dundas has been housing its apparatus in the Commission's Transformer Station, but with the completion of the feeder capacity of this station, all the spare room will be required, and they are now building a separate distributing station in the town. This station will be similar to the

Niagara Transformer Station



Toronto Transformer Station

standard Type "D." The municipality requested tenders on this building according to the Commission's drawings and are proceeding with the construction of the same. The three 150-kv-a., 13,200/2,200-volt transformers are to be transferred from the present station to the municipal station. The switching equipment has been purchased from the Canadian Westinghouse Co. by the Commission for the municipality.

TORONTO TRANSFORMER STATION

Building Extension

Messrs. Witchall & Son, of Toronto, have completed the building mentioned in last report. The additional bank of three 2,500-kv-a., single-phase, 110,000 "Y"/13,200 "delta" volt, oil-insulated, water-cooled transformers have been installed and will be placed in operation early in November. This makes a total installed 110,000-volt transformer capacity of 22,500 kv-a., besides a spare 2,500-kv-a. unit. The 110,000-volt bus in the old station has been extended and connected to the high tension side of the new 7,500-kv-a. transformer bank, through a "K-15" oil switch and two sets of disconnecting switches. The connecting material consists of one-inch copper tubing. The oil switch is automatic for overload operation through series trip coils. The low-tension side of the new bank is connected in the same manner as the previous transformers i.e., by means of cable and an "H-3" motor operated, three-pole, oil switch and disconnecting switches to a 13,200-volt, three-phase bus in a brick structure. The above equipment was installed by the Canadian General Electric Company. The remainder of the 13,200-volt apparatus was purchased by the Toronto Hydro-Electric System from the Canadian General Electric Company, and consists of equipment for one bus "tie" to the old bus and five new 13,200-volt feeders. The 13,200-volt oil switches, together with disconnecting switches, instrument transformer, and four smaller capacity feeder switches, etc., are installed in a brick structure, while another brick structure was built for two additional banks of transformers, one bus tie and six feeders. Besides the above, the Toronto Hydro-Electric System have installed in this station two banks of three, 500-kv-a., 13,200/2,200-volt, single-phase transformers, together with 2,200-volt feeders, switchboard, and the necessary switching equipment for the same.

The heating equipment for the extension will consist of 10-kw., three-phase, 220-volt, electric radiators located within the building on the outside walls beneath the windows on the main floor and in the basement. These should maintain a temperature of about 55 deg. fahr. in the station during the coldest weather. The operator's room will be provided with additional heaters sufficient to maintain a temperature of 70 deg. fahr. or over. The extension altogether will require about 150 kv-a. capacity in heaters. The old building is at present heated by steam, but will later be heated electrically and will require about 150 kv-a. in additional heater capacity. For this purpose three 100-kv-a., 13,200/230 115-volt, single-phase transformers have been purchased from the Packard Electric Co. These transformers, together with the 13,200-volt and the 220-volt wiring and the fused knife-switches for the several heating circuits, are being installed by the Commission.

LONDON TRANSFORMER STATION

High-Tension Extension (1913)

The equipment for the 110,000-volt lines to Woodstock and St. Thomas, described in the last report, was completely installed and placed in service in August.

Additional Feeders

On May 14th a contract was placed with the Canadian General Electric Company for the supply of the complete switching equipment for two additional 13,200-volt feeders, including lightning arresters, disconnecting switches, choke coils, expulsion fuses, potential and current transformers, oil switches (complete with cell material excepting floor steel and structure), panel, meters, relays and bus and cable insulator supports. An oil switch was also included for connection between the transformers and the 13,200-volt bus. The oil switch structures and equipment will be installed by the Commission.

Building Extension (1914)

In order to house additional equipment that is required it was decided to extend the station building 48 feet. This extension will accommodate five more 1,250-kv-a., single-phase, 110,000 volt transformers, together with the necessary high-tension and low-tension switching equipment, four 13,200-volt, three-phase feeders and switchboard. The complete building will be 182 feet long. There will also be a basement under approximately one half of the extension and the greater part of it will be used as a storeroom. Drawings and specifications were prepared for this extension and the contract was placed in September with the Messrs. Hyatt Brothers, of London, who constructed the older part of the building.

Additional Equipment

A contract was placed on October 17th with the Canadian General Electric Co. for three, 1,250-kv-a., 110,000/13,250-volt transformers, together with the necessary high-tension switching equipment. The transformers are to be shipped prior to December 31st, 1914, and the switching equipment prior to February 15th, 1915. Tenders have also been received for low-tension switching equipment for the above transformers. This will give the station a capacity of 7,500 kv-a., and a 1,250-kv-a. spare transformer.

Strathroy Municipal Station

Drawings for a standard station, together with building specifications were forwarded to the Municipality of Strathroy and a brick building constructed with inside dimensions of 16 ft. by 20 ft. by 14 ft., which will accommodate three 150-kv-a. transformers, two incoming, 13,200-volt lines and three outgoing, 2,300-volt lines. The building is located on a lot beside the Water and Light Commission's office building.

Standard electrical layout drawings were prepared and tenders requested for the supply of the following equipment erected in the station: Three 75-kv-a., 13,200/2,300-volt, single-phase, self-cooled transformers: one 20-kw., constant current, street lighting, transformer and switching equipment, together with switchboard for controlling the above transformers: one 13,200-volt, three-phase overhead, incoming line; one three-phase, four-wire, feeder and one single-phase, street-lighting feeder. Six tenders were received for the power transformers, two for the street-lighting transformers, four for the switching equipment and two for the complete equipment. A contract for the total installation was placed with the Canadian General Electric Company which is now engaged in installing the equipment. This Station will be placed in service some time in November.

Lucan Distributing Station

Tenders have been received for the construction of a brick building similar to the standard Type "E" station to contain three Canadian General Electric 75-kv-a., 13,200/2,300-volt, single-phase, self-cooled transformers, together with Westinghouse switching equipment for one incoming, 13,200-volt line and one outgoing 4,000-volt, three-phase, 4-wire, grounded neutral feeder. A standard horn gap, air type, three-pole, disconnecting switch will also be installed on a pole outside the station for isolating the station on the 13,200-volt side.

GUELPH TRANSFORMER STATION

Operators' Room

A portion of the north end of switchboard room was separated from the rest of the station by a 2¼-inch partition wall, consisting of plastered "Hyrib" and windows. The room formed, which contains the telephones and the operators' desk, can be easily heated and in this way comfortable quarters are secured for the operator without heating the whole station.

High-Tension Emergency Bus

A 110,000-volt emergency bus conductor has been placed above the transformers and together with the three main bus conductors has been extended over the spare transformer in the erection room, thus enabling one man in a very few minutes to connect the spare transformer in place of any one of the three transformers that are now in service.

Low-Tension Emergency Bus

A three-phase, 13,200-volt, connection is now being installed between the 13,200 volt feeders and the 110,000-volt line so that 13,200-volt power can be supplied from Dundas station over the 110,000-volt line to feed the 13,200-volt feeders when the 110,000/13,200-volt transformer bank is out of service.

Additional Feeders

Three 13,200-volt, three-phase, overhead feeders have recently been installed. One is to be used in conjunction with the original feeder supplying the Central Prison Farm, Ontario Agricultural College, Acton, Rockwood and Georgetown, and the other two for transmitting power to Elora and Fergus. The equipment for each line consists of disconnecting switches, oil switches, choke coils, electrolytic lightning arresters, instrument transformers, meters and switchboard panels. This equipment was purchased from the Canadian General Electric Company, as was also the previous apparatus, and together with the oil switch cell work and barriers, were installed by the Commission. It will probably be placed in service early in November.

Central Prison Farm

The permanent power house mentioned in last report is now under construction. The walls and roof are all completed and the installation of equipment will be commenced shortly. The floor will be laid within a few days and then the electrical equipment will be transferred from the temporary building, in which it is now located, to a room in the power house.

Corporation of Guelph

Drawings and specifications for a 13,200-volt station building were prepared and forwarded to the Corporation of Guelph, who built the station. The corporation requested and received tenders for one 225-kv-a., three-phase, 550-volt

transformer, which was to operate in parallel with the two transformers at present in the 110,000-volt transformer station. The tenders were submitted to the Commission and the contract placed with the Canadian General Electric Company. The transformer will be placed in service as soon as received.

Cheltenham (Terra Cotta) Distributing Station

The Interprovincial Brick Company has established a brick works between Terra Cotta and Cheltenham and are purchasing power from the Commission. They have built a standard Type "D" station structure, which is approximately 17 ft. by 20 ft. by 14 ft. inside dimensions, with room for three 150-kv-a. transformers, two incoming 13,200-volt lines and three 2,300-volt feeders. Switching equipment for one 13,200-volt incoming line and one 575-volt, three-phase feeder, purchased from the Canadian Westinghouse Company, has been in service for about three months. Three 75-kv-a., Canadian General Electric transformers were removed from the Mimico distributing station and installed here.

Nichol Distributing Station

The plan of distribution for Fergus and Elora provided for a station midway between Fergus and Elora, which are located about three miles apart. This station was to be called the Nichol Distributing Station, after the township in which the two corporations are situated. Contracts had already been placed for part of the necessary equipment when the two municipalities signified a desire to have separate stations, and as the equipment ordered was "standard," it was easily used in one of the new stations.

Fergus Distributing Station

A standard Type "E" brick building was built by H. G. Wynes, of Collingwood, to contain electrical equipment for controlling the distribution system in Fergus. The present installation consists of one incoming 13,200-volt line, three 75-kv-a. transformers and one 2,300-volt feeder. The transformers were supplied by the Canadian General Electric Company. The 13,200-volt choke coils and fuses, together with the 2,300-volt lightning arrester, oil switch, bus and metering equipment was supplied and installed by the Westinghouse Company. A three-pole, horn gap, air break switch, developed by the Commission, was installed in the 13,200-volt incoming line on a pole structure outside the station for disconnecting the station on the high-tension side.

This station was placed in service on the 22nd of October.

Elora Distributing Station

A duplicate of the Fergus station and equipment was installed in Elora by the same contractors and placed in service on October 22nd for the Elora street lighting system. At the present time one of the three Fergus transformers is installed in this station to supply single-phase power. The three 75-kv-a. transformers intended for use here are at present in the Georgetown station but will be removed about the beginning of November.

PRESTON TRANSFORMER STATION

Operators' Room

An operators' room similar to that constructed at Guelph has been built in this station.

Corporation of Galt

Three 250-kv-a., 6,600/2,200-volt, single-phase transformers were purchased by the Commission for the Corporation of Galt from the Maloney Electric Company and installed in the Corporation's main substation. These were used to replace three 150-kv-a., Packard transformers which were removed to a new station built by the Corporation in the centre of the power district in the south part of the city. The Commission prepared the contract between the Corporation and the Maloney Electric Company of Canada, Limited, and inspected the transformers in the factory.

Preston Municipal Station

In December, 1913, an additional power feeder, including panel, meters and oil switch, was purchased for the Preston Water and Light Commission, from the Canadian Westinghouse Company, who had previously supplied a line panel, a service feeder panel and one power feeder panel. Three 6,600-volt, single-pole, lightning arresters were also purchased from the Northern Electric Company for the Doon line.

BERLIN TRANSFORMER STATION

Building Extension (1913)

The extension required for the second bank of transformers has been built and the Canadian General Electric Company has practically completed the installation of the electrical equipment.

An operators' room was also built when the above extension was made.

Waterloo Corporation

During the early part of the year assistance was given the Corporation of Waterloo in procuring the necessary apparatus to enable them to purchase power from the Commission. Previously they generated their own power by steam. Two 150-kv-a., 13,200/2,300-volt, single-phase transformers which complied with the Commission's standard specifications were purchased by the Corporation from the Canadian Westinghouse Company. These were inspected in the factory by the Commission's inspector. The Corporation also purchased a new switchboard complete with oil switches and meters, etc., from the Westinghouse Company. The Commission prepared drawings giving the layout of all apparatus in the municipal station and bought and installed all the connecting material for the corporation.

STRATFORD TRANSFORMER STATION

Building Extension (1913)

The extension to accommodate the second bank of 1,250-kv-a. transformers was built by Messrs. Wells & Gray of Toronto. The transformers were installed by the Canadian Westinghouse Company and have been placed in temporary service on the 13,200-volt power lines. The Canadian General Electric Company have practically finished the installation of the permanent 110,000-volt and 26,400-volt switching equipment, and within a few days 26,400-volt power will be supplied to Clinton and Goderich.

Town of Goderich

The switching and metering equipment referred to in last report has been installed and placed in service, using 13,200-volt power from Stratford transformer station. Power will soon be available for delivery at 26,400 volts, at which time the transformers will merely have to be reconnected on the terminal board for 26,400 volts.

Town of Clinton

The switching and metering equipment mentioned in the last report has been installed and in service with 13,200 volts on the high-tension side for about nine months. This station will shortly be fed with 26,400-volt instead of 13,200-volt power from Stratford station.

ST. MARY'S TRANSFORMER STATION

Operators' Room

An operators' office, with a floor space of 11 ft. 6 in. by 7 ft. 10 in. has been partitioned off in this station.

WOODSTOCK TRANSFORMER STATION

Operators' Office

A floor space of 11 ft. 6 in. by 7 ft. 11 in. at the end of the switchboard room was partitioned off for the use of the operators. This room is similar to those constructed at Preston, St. Mary's, Guelph and St. Thomas.

High-Tension Volt Roof Structure

Drawings have been prepared for a structure to support three "downward pull" 110,000-volt, single-pole disconnecting switches above the roof of the transformer station. It is proposed to connect Woodstock station on the second high-tension line between Dundas and London and use the above switches for sectionalizing the other line between Brant station and London station.

Woodstock, Thames Valley and Ingersoll Railway

An extension to the generating equipment in the power house of the Woodstock, Thames Valley and Ingersoll Railway Company has been made to provide for a supply of power from the Commission.

The railway company purchased one rotary converter, the necessary starting reactance and panel and three single-phase transformers. The Commission prepared drawings showing the layout of the above equipment, together with the incoming 13,200-volt line apparatus and all connecting material, purchased this apparatus and installed the complete equipment.

Metering Panel

Equipment consisting of a Westinghouse recording wattmeter and a Siemens maximum demand, watt-hour meter, together with the current and potential transformers, test links and panel were installed in the power house of the Woodstock, Thames Valley and Ingersoll Railway for metering the 13,200-volt power used by them. This metering equipment is the property of the Commission.

Embro Distributing Station

A brick building with a floor space of 12 ft. by 15 ft. and an inside height of 14 ft., with accommodation for one incoming three-phase, 13,200 volt line from the Woodstock Transformer Station; two three-phase, 4,000-volt feeders; three 150-kv-a. transformers and switching equipment, was constructed by H. G. Wynes, of Collingwood.

Three 75-kv-a., 13,200/2,300-volt, single-phase transformers have been purchased from the Canadian General Electric Co., and are to be delivered about the 1st of November.

The switching equipment consisting of 13,200-volt choke coils and fuses for one incoming line; a 4,000-volt bus; oil switch; instrument transformer and lightning arresters together with the switchboard for one feeder has been purchased from the Canadian Westinghouse Company, which is to deliver and install it about the 1st of November.

A three-phase, horn gap, air brake, disconnecting switch designed by the Commission will be installed on a wooden pole outside the station for disconnecting the station on the 13,200-volt side.

ST. THOMAS TRANSFORMER STATION

Building Extension (1913)

The 32-foot extension required for the new line to London and the two new lines to the Essex station has been completed.

The electrical equipment has all been installed by the Canadian Westinghouse Company and the three additional 110,000-volt lines have been placed in service.

Operators' Room

A portion of the switchboard room 11 ft. 6½ in. by 7 ft. 10½ in. in size has been partitioned off. Sufficient windows have been provided to allow the operator a clear view of the switchboard room. The former room provides a cleaner place for the operator and makes possible a more economical heating of the station.

City of St. Thomas

The South End Station with all its equipment was placed in service early this year.

COOKSVILLE TRANSFORMER STATION

Low-Tension Extension

The four additional 13,200-volt feeders supplied and installed by the Westinghouse Company were all placed in service last January.

Operators' Room

A space of about 12 ft. 6 in. by 10 ft. 6 in. at the west end of the switchboard was partitioned off to contain the telephones and operators' desk.

Mimico Distributing Station

A third 2,300-volt, three-phase feeder of 300-kv-a. capacity has been installed in this station for distributing power to New Toronto. The bus extension, and switching equipment, together with the switchboard panel, three ammeters and one graphic, power-factor meter were supplied by the Canadian General Electric Company and installed by the Commission. This extra feeder necessitated increasing the transformer capacity to three 150-kv-a. transformers which were purchased from the Canadian Crocker-Wheeler Company. The three original 75-kv-a. transformers were removed to the Cheltenham Distributing Station. The installation of the transformers was completed about May 15th, 1914, and of the feeder about the first of October.

Etobicoke Distributing Station

The power demand in the Township of Etobicoke is increasing very rapidly and a new station will soon be required in addition to the Mimico Distributing Station. When equipment was being purchased for several other distributing stations, an opportunity was afforded to buy an additional equipment at a very low figure and a contract was placed with the Canadian General Electric Company for three 150-kv-a. transformers, switching equipment for one 13,200-volt line and two 2,300-volt feeders, suitable for installation in a standard station.

Woodbridge Distributing Station

A standard 13,200-volt brick station building was built by Wells & Gray of Toronto for the municipality of Woodbridge. The Canadian General Electric Company delivered three 75-kv-a., 13,200/2,300-volt, single-phase transformers, which had previously been purchased, on the 9th of October.

The Canadian Westinghouse Co. supplied and installed switching equipment for one incoming 13,200-volt line and two 4,000-volt, 200-kv-a., three-phase, four-wire feeders.

The Commission is installing a standard 13,200-volt, three-pole, horn-gap, air-break, disconnecting switch on a pole outside the station for disconnecting the incoming line.

This station was placed in temporary operation on October 12th for Thanksgiving Day celebrations and will be placed in permanent service early in November.

BRANT TRANSFORMER STATION

The Brant Transformer Station was placed in service on the 1st of January, 1914, and since then 26,400-volt power has been supplied to the Corporations of Brantford and Paris.

The cubical contents of this station is about 150,000 cu. ft. plus 6,000 cu. ft. in the basement and 7,500 cu. ft. in the control room. There were nine 10-kw., 220-volt, three-phase electric radiators installed in the building last winter. These are disconnected during the periods of peak load on the system. One radiator in the control room which is partitioned off from the rest of the building easily maintained a temperature of over 70 deg. fahr. and at the same time allowed good ventilation. The radiators were disconnected several times for one or two hours, and at the end of these intervals the temperature was found to have fallen only 6 or 7 deg. fahr. The rest of the station was maintained at a temperature of about 50 deg. fahr. excepting for short intervals when the heaters were not in operation.

Corporation of Brantford

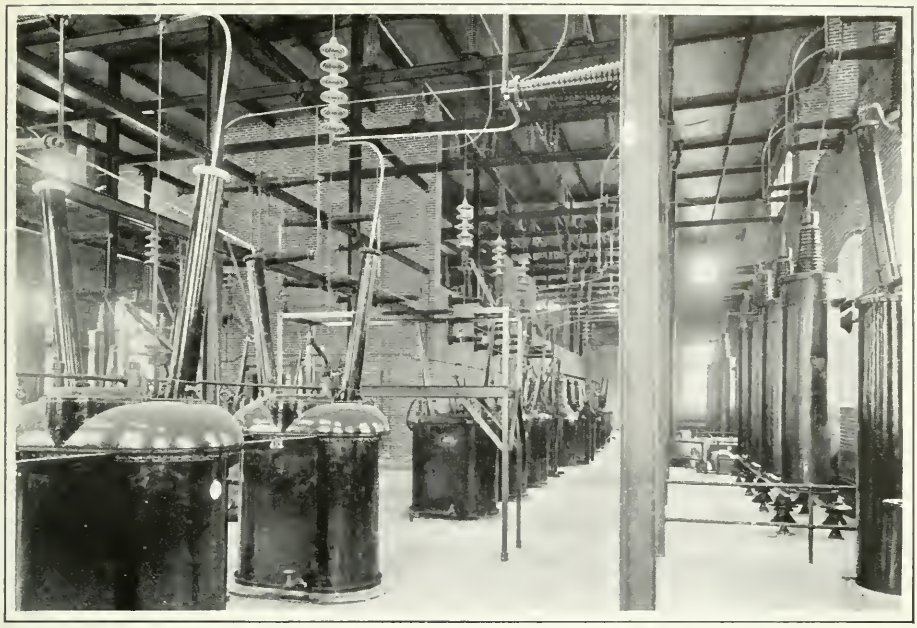
The equipment mentioned in last report has been completely installed. The station was placed in service on January 17, 1914.

Corporation of Paris

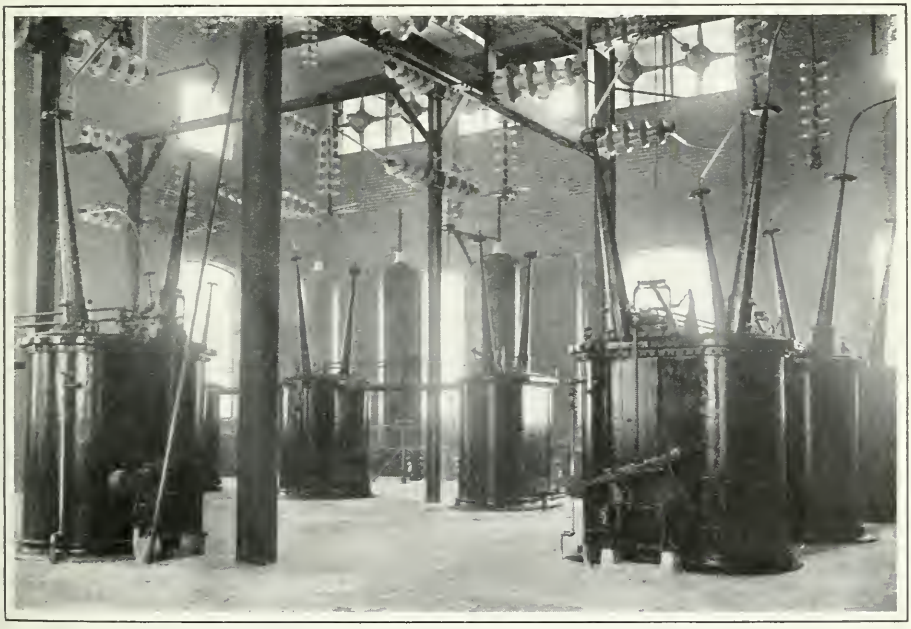
Power was first delivered to Paris at 26,400 volts on January 4, 1914.

Simcoe Municipal Station

A standard Type "G" station is being built by Mr. Gunton, a local contractor, for the municipality of Simcoe. It will be completed about the middle of November.



High-Tension Room—London Transformer Station



High-Tension Room—Brant Transformer Station

The equipment consisting of three 100-kv-a., single-phase, 26,400/2,300-volt transformers and switching equipment for one incoming 26,400-volt line and two 4,000-volt, three-phase, four-wire feeders has been purchased by the Commission for the Corporation of Simcoe from the Canadian Westinghouse Company of Hamilton and will be delivered and installed during November.

Waterford Distributing Station

Tenders have been received from the construction of a standard Type "H" station building in Waterford. Three 75-kv-a. transformer and switching equipment for one 26,400-volt incoming line and one 100-kv-a., 2,300-volt feeder were purchased from the Canadian Westinghouse Company and will be delivered early in November.

Drumbo Distributing Station

Arrangements have been made to supply power to Drumbo at 26,400 volts from Brant Transformer Station. A standard Type "H" brick station with a floor space of 13 ft. by 15 ft. 8 in. and an inside height of 15 ft. 8 in. has already been built under contract by Messrs. Wells & Gray. This station has an approximate ultimate capacity of three 150-kv-a. transformers and with outlets for one 26,400-volt, three-phase, incoming line and three three-phase, four-wire, 4,000-volt outgoing feeders.

Three 75-kv-a., 26,400/2,300-volt transformers were purchased from the Canadian General Electric Company for this station. Switching equipment for controlling one 26,400-volt, three-phase, incoming line, the high and low-tension circuits of the three transformers; 4,000-volt, three-phase bus and three 4,000-volt, three-phase, four-wire grounded neutral feeders, was purchased from and installed by the Canadian Westinghouse Company. This station will be placed in service about the 1st of November.

Ayr Distributing Station

The municipality of Ayr which is situated about ten miles north-west of the Brant Transformer Station will receive power from a distributing station which will be fed at 26,400 volts. The building is to be similar to the standard Type "H" station and is at present under construction by Messrs. Wells & Gray. The switching equipment has been purchased from the Canadian Westinghouse Company and will control one incoming 26,400-volt, three-phase line, one outgoing 150-kv-a., 4,000-volt, three-phase feeder and three Canadian General Electric, single-phase, 75-kv-a., 26,400/2,300-volt, self-cooled transformers.

KENT TRANSFORMER STATION

The Kent Transformer Station was built near the City of Chatham, in the County of Kent, and arrangements have already been made to supply power to the City of Chatham and the Corporations of Wallaceburg, Dresden and Tilbury.

The switching equipment was supplied by the Canadian Westinghouse Co., and consists of two 110,000-volt lines from St. Thomas; two 110,000-volt lines to Essex; 110,000-volt connection to a bank of three 1,250-kv-a., single-phase transformers; four 1,250-kv-a., 63,500/26,400-volt, single-phase transformers; 26,400-volt connections to the transformer bank; 26,400-volt, three-phase bus; six 26,400-volt outgoing feeders; one 26,400-volt service feeder; three 100-kv-a., 26,400/575-

volt station transformers; three 575-volt, three-phase feeders (one for station service transformers, one for heating circuits and one for local distribution); three 15-kv-a., 575/220/110-volt service transformers; switchboard; control battery and all auxiliary control apparatus.

All the 110,000-volt, 26,400-volt and 575-volt oil switches are electrically operated from one switchboard.

The lightning arresters are of the electrolytic type with grounded tanks for an ungrounded neutral system. There are two horn gaps in series on each phase, one of which is shunted by a resistance. During "charging" this resistance cuts down the initial heavy currents and during heavy discharges it will cause the second horn-gap to discharge and so cut down the arc on the first horn-gap.

The 110,000-volt line equipments were placed in service on August 15th to supply power to Essex Station. The remainder of the equipment is practically all installed and will be placed in operation early in November.

City of Chatham

Designs are being prepared for a station which will be located in Chatham and used to supply a distributing system for the city. Tenders have been requested for two 750-kv-a., three-phase, 26,400/4,000/2,300-volt transformers for the station.

Wallaceburg Distributing Station

To provide for the distribution of power in and around Wallaceburg, in the County of Kent, it was decided to build a station for receiving 26,400-volt power from Kent transformer station. Drawings were accordingly prepared for a building, part of which will be used for the station and the remainder as an office for the Wallaceburg Commission. Provision was made for a basement under the office part of the building which will be used as a storehouse for the local Commission. The station section will be the same as the standard Type "G." Tenders have been requestel from local contractors for the construction of the building and work will be started early in November.

Three 150-kv-a., 26,400/2,300, 575-volt transformers have been purchased from the Canadian General Electric Company, and in accordance with the terms of contract these should have been shipped on October 16th, 1914.

Switching equipment for one 26,400-volt incoming line: one 250-kv-a., 4,000-volt, three-phase, 4-wire, grounded neutral power feeder and one lighting feeder has been purchased from the Canadian Westinghouse Company, and according to the terms of the contract should have been shipped on October 13th.

Tilbury Distributing Station

Tenders have been requested for a building, part of which will be used as a station for receiving 26,400-volt power from Kent Station and the remainder as an office for the Tilbury Hydro-Electric Commission. The station will be similar to the standard Type "G" station, and will contain Westinghouse switching equipment for one 26,400-volt line; one 300-kv-a., 4,000-volt, three-phase, 4-wire feeder to Tilbury and one 150-kv-a. feeder to Comber, together with three Canadian General Electric, 100-kv-a., 26,400/2,300/575-volt transformers.

Dresden Distributing Station

A standard Type "H" station layout equipment has been purchased from the Canadian Westinghouse Co. for this station. It consists of switching equipment for one incoming 26,400-volt line from Kent transformer station; three 75-kv-a., 26,400/2,300/575-volt transformers and one 100-kv-a., three-phase, 4-wire grounded neutral feeder. The building will be built and the apparatus installed during November.

ESSEX TRANSFORMER STATION

This station was placed in operation on the 15th of August, and is now supplying power at 26,400 volts to municipal stations at Windsor and Walkerville.

Walkerville Municipal Station

The Walkerville Hydro-Electric Power Commission was supplied on October 29th, 1914, with 26,400-volt power. This was metered on the low-tension side of power transformers and transmitted from Essex Station.

The local distributing station is owned by the municipality of Walkerville, but the engineering in connection with it was performed by the Commission, who submitted their recommendations to the Walkerville Commission for their approval. H. G. Christman & Co., of Hamilton, who built the Essex transformer station, was awarded the contract for constructing the building.

The station has an ultimate capacity of four 750-kv-a., three-phase transformers; two 26,400-volt incoming lines and nine three-phase, 4,000-volt feeders. The present installation does not include the fourth transformer or the ninth feeder.

The 26,400-volt lines are protected by Westinghouse lightning arresters and choke coils and controlled by Type "E" three-phase, series trip, oil circuit breakers and Type "M" disconnecting switches. The oil switches are automatic through series trip, inverse time limit overload relays operating 110-volt 25-cycle tripping coils. The 26,400-volt bus is an open one and is connected to the transformers through disconnecting switches only, although provision has been made for an oil switch also if operating conditions necessitate it. The three transformers were furnished and erected by the Canadian Crocker Wheeler Co., St. Catharines.

The secondaries of the transformers are connected to the 4,000-volt bus through Westinghouse Type "B" oil current breakers, which are made automatic by current transformers and Type "B" inverse time limit, overload relays.

The 4,000-volt bus is located behind the switchboard panels and is sectionalized by disconnecting switches. One half of the bus is fed by two transformers and delivers power to four three-phase, lighting feeders through a Canadian General Electric, 50-kv-a., three-phase, automatic, induction regulator. The other half of bus is fed at present by one transformer and is to be supplied also from the fourth transformer when it is installed. Four power-feeders are supplied from this part of bus. The meter equipment in this station consists of an ammeter in each feeder and in each of the transformer secondaries, together with one voltmeter connected to either part of the bus. The station load is totalized by one graphic recording watt meter and one graphic recording power-factor meter on the 4,000-volt side of the 750-kv-a. transformers. The secondaries of the current transformers are connected in parallel to the one set of meter elements.

The arrangement of this station consists of a main floor, basement and first floor. All the 26,400-volt equipment is located on the first floor. The switchboard

transformers and all 4,000-volt equipment cover about two-thirds of the main floor, while the remainder is partitioned off and is to be used as an office by the Walkerville Commission. The basement will be used for the transformer circulating water pumps, etc., and also as a storehouse.

Windsor Municipal Station

A station, similar to that at Walkerville, was constructed and placed in service on August 15th, 1914, at Windsor. This station has at present only two 750-kv-a., three-phase transformers; three power feeders, and three multiple lighting system feeders, which latter are fed through a 90-kv-a., three-phase, induction regulator. A series lighting system is also used here, and consists of twelve two-wire feeders from a three-phase, 4-conductor bus which is connected through an oil switch to the main 4,000-volt bus. Each series lighting feeder has a 28-kw., 6.6 amp., constant current regulator and is controlled on the primary side by a double pole, single throw, non-automatic switch and by a switch plug on the secondary side.

This station has a graphic recording polyphase wattmeter for metering the power feeders, another for the multiple lighting feeders, and a third for the series lighting feeders.

The Canadian General Electric Co. furnished and erected the two 750-kv-a., three-phase, 26,400/4,000/2,300-volt oil immersed, water cooled transformers, and they also supplied the 90-kv-a., potential regulator, which was installed in the station by the Windsor Commission. The Canadian Westinghouse Co. supplied and installed the switching equipment and made connections to all the above apparatus.

Severn System

Barrie Distributing Station

Disconnecting switches and connecting material have been purchased for connecting a second 22,000-volt incoming three-phase line to the station bus. This apparatus will be installed in November by the Commission.

Collingwood Distributing Station

The second 22,000-volt, three-phase line will be connected to this station in November.

Stayner Distributing Station

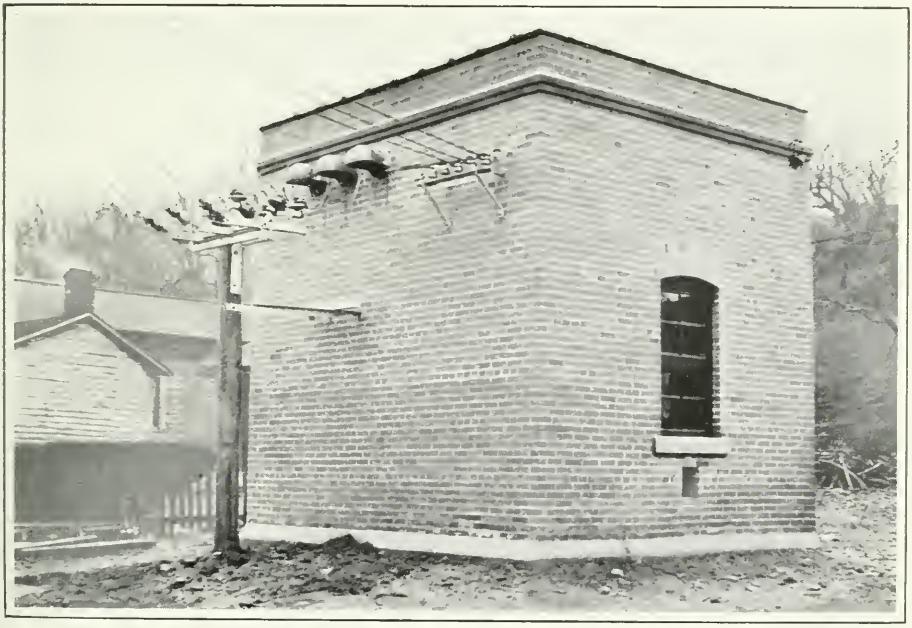
A second feeder has been added to this station to supply power at 4,000 volts to Creemore, which is only a few miles distant. The feeder capacity is 200-kv-a. The apparatus, including panel, meters, oil switch, etc., was furnished by the Canadian Westinghouse Company and installed by the Commission.

Port McNicoll Distributing Station

A brick station, with a metal roof, similar to the standard Type "E" was built by Mr. J. Russell, a local contractor. The equipment was supplied by the Canadian General Electric Company for one incoming 22,000-volt, three-phase line, two 25-kv-a., single-phase transformers and one outgoing 2,300-volt, 100-kv-a., light and power feeder. A three-pole, horn gap, air break, disconnecting switch for disconnecting the high-tension line is mounted on a pole outside the station.

All the electrical apparatus is to be installed by the Commission and will be placed in service about the end of November.

Essex Transformer Station



Standard Type "E" Station—Woodbridge

Waubaushene Distributing Station

A duplicate of the Port McNicoll station and equipment will be placed in service in Waubaushene the latter part of November.

Wasdell's Falls System

Generating Station

This station, with the equipment which was described in the last report, was placed in operation in September, and is now supplying power to Beaverton and Cannington.

Beaverton Distributing Station

Beaverton has generated electric power by steam for several years, but it decided by a municipal vote to take power from the Commission, which has installed electrical equipment in a part of the steam station building, after the latter had been re-modelled.

The equipment was purchased from the Canadian Westinghouse Co., and consists of three 100-kv-a., single-phase, 22,000/2,300-volt, self-cooled transformers and switching equipment for controlling one incoming 22,000-volt, three-phase line and two outgoing 200-kv-a., 4,000-volt, three-phase, 4-wire, grounded neutral feeders. One feeder supplies Beaverton, and the other Brechin and Gamebridge.

Cannington Distributing Station

A brick distributing station with inside dimensions of 18 ft. by 23 ft. by 15 ft. 2 in. was built during the year by Mr. H. G. Wynes, of Collingwood, adjacent to the Town Hall. The electrical equipment was purchased from the Canadian Westinghouse Company at the same time as the equipment for the Beaverton and Winchester station, so that it was possible to purchase at a much lower price than if the equipment for each station had been bought separately.

There are at present installed one 22,000-volt, three-phase incoming line with provision for a second; three 100-kv-a., 22,000/2,300-volt, single-phase transformers and three 4,000-volt, three-phase outgoing feeders. The 22,000-volt line is controlled by a Type "E," hand-operated automatic oil switch and protected by choke coils and multigap lightning arresters.

The low-tension side of the transformers is connected direct to the bus, while each feeder is controlled by a Type "B" automatic hand-operated oil switch for switchboard mounting and protected by Type "S" multigap lightning arresters.

The metering equipment consists of an ammeter with ammeter switches, a voltmeter on the power transformer secondaries, a graphic recording wattmeter, an indicating power-factor meter, and an ammeter on each feeder.

This station was placed in service about the 1st of October.

Eugenia System

Generating Station

This station is now being constructed on the Beaver River, about seven and one-half miles from Flesherton, Ont., and will generate power for distribution to Owen Sound, Durham, Chatsworth, Markdale, Flesherton, and other points in and around the counties of Grey and Bruce.

The building, as now being constructed, will only accommodate the present equipment, but provision is being made to allow for doubling the building and equipment when the load requires it. The transformers and switchboard are located

on the main floor with the waterwheels and generators whereas the 22,000-volt equipment is located in a gallery above the switchboard and transformers. The air compressor, water pumps, oil tanks, oil filter, service lighting transformers, and storage battery are located in the basement.

Specifications were issued in July for two 1,200-kw., at 85 per cent. power-factor, 900 r.p.m., three-phase, 60-cycle, 4,000-volt, horizontal type, waterwheel generators. The temperature rise of any part after a continuous run for 24 hours at 1,200-kw. load, normal speed and voltage, 85 per cent. power-factor (lagging), is guaranteed not to exceed the temperature of the surrounding air referred to a room temperature of 25 deg. cent. by more than 40 deg. cent. Immediately following the above run, a two hour run at 1,500 kw. load, normal speed and voltage, and at 85 per cent. power-factor (lagging) shall be made, and the corresponding temperature rise of any part shall not exceed 55 deg. cent. Each generator shall be capable of withstanding a short circuit at terminals for one minute with excitation necessary to give rated terminal voltage at 1,500 kw. load. 85 per cent. power-factor (lagging) and normal speed, without displacing the windings and without injury from overheating or other causes to any part of the generator. Each generator shall be capable of standing an overspeed test at 185 per cent. of normal speed for fifteen minutes with excitation, the same as in short circuit test above, without injury due to mechanical stresses, voltage rises, or other causes. Tenders were received, and after a very careful comparison it was decided early in October to place the contract with the Canadian Westinghouse Co., of Hamilton, which guaranteed to deliver the apparatus on or before February 25th, 1915.

Specifications for the switching equipment were issued in October and the tenders are being received.

Owen Sound Distributing Station

Tenders have been received for three 400-kv-a., single-phase, 22,000/2,300-volt, transformers, and the necessary switching equipment for a standard Type "G" station.

St. Lawrence System

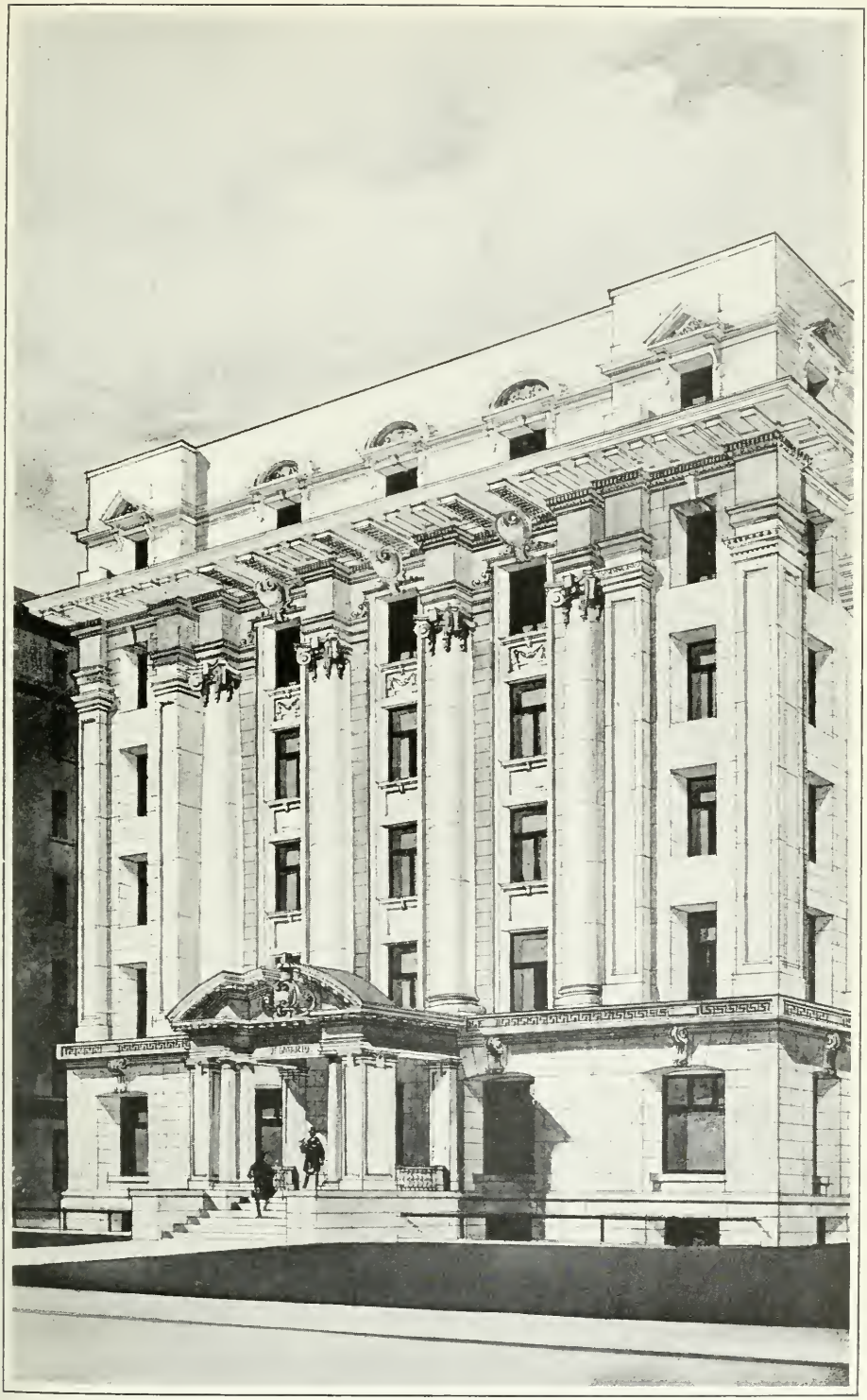
Winchester Distributing Station

A standard 26,400-volt distributing station, similar to that built at Cannington, was constructed at Winchester under contract by H. G. Wynes, of Collingwood, to supply power to Chesterville and Winchester.

The present transformer equipment consists of three 50-kv-a., 26,400/2,300-volt, single-phase, transformers, which were purchased from the Canadian General Electric Co. The switching equipment controlling one incoming 26,400-volt, three-phase line; one 100-kv-a., 4,000-volt three-phase, feeder to Chesterville and one 150-kv-a., 3,000-volt feeder for Winchester, was purchased from the Canadian Westinghouse Co. This station was placed in service on April 18th, 1914.

Brockville Municipal Station

Three 200-kv-a., 26,000/2,300/575-volt single-phase, transformers have been purchased from the Canadian General Electric Co., for this station. Delivery is promised for January, 1915.



Office Building

Tenders have also been requested for switching equipment similar to that employed with the standard Type "G" stations.

Drawings are being made up to cover an extension to the present steam plant building 18 ft. 6 in. by 36 ft. 1 in. by 25 ft. inside dimensions.

Port Arthur System

Corporation of Port Arthur

Acting at the request of the Commissioner of Utilities at Port Arthur the Commission placed an order with the Canadian Westinghouse Co. for one three-phase, 22,000-volt, low equivalent lightning arrester; three choke coils; six disconnecting switches, and one Type "E" automatic hand-operated remote control circuit-breaker, with series inverse time limit overload trip coils and panel. This equipment was required in the waterworks substation and was shipped in June, 1914.

Tenders were also requested for four 400-kv-a., 22,000/2,300/575-volt, single-phase, water-cooled, 60-cycle transformers for the waterworks substation. It was recommended that Port Arthur purchase these transformers from the Canadian General Electric Co. This recommendation was followed and the Commission was instructed to prepare a contract between the Corporation of Port Arthur and the Canadian General Electric Co., and also to inspect the transformers in the factory before shipment, which was made on July 30th, 1914.

Electric Railway Systems

London and Port Stanley Electric Railway

Preliminary plans for two substations, for the electrical equipment of the London and Port Stanley Electric Railway, which are to be located at the Horton Street substation of the London Water and Light Commission, and in an extension to the Commission's high-tension transformer station at St. Thomas were prepared and specifications issued covering the purchase for each station of two 500-kw., 1,500-volt d.c., 25-cycle rotary converters with the necessary transformers and 13,200-volt a.c. and 1,500-volt d.c. switchboard equipment. Tenders were received for this apparatus, and, after careful consideration, the contract for the rotary converters, the necessary transformers, and the switching equipment for the two substations was placed with the Canadian Westinghouse Company, Limited. Provision is made in the design of the stations for addition, rotary converters, and feeders in order to take care of further developments in the railway's business. The Horton Street station in London is already constructed and plans and specifications are being prepared for the necessary extension to the Commission's transformer station at St. Thomas. The equipment will be installed by the Commission under the supervision of the contractor's engineer.

London Street Railway

For the purpose of supplying direct-current power to the London Street Railway the Board of Water and Light Commissioners of London called for tenders on two 500-kw., 600-volt rotary converters with two banks of 13,200-volt, 25-cycle transformers and the necessary direct-current and alternating-current switching equipment. These tenders were referred to the Commission for their recommendation, and after checking them carefully the Commission recommended that the

contract be awarded to the Canadian General Electric Company. The contract was prepared and the apparatus inspected during the process of manufacture by the Commission. The rotary converters, transformers and the switching equipment were installed in the extension to the Horton Street substation by the local staff.

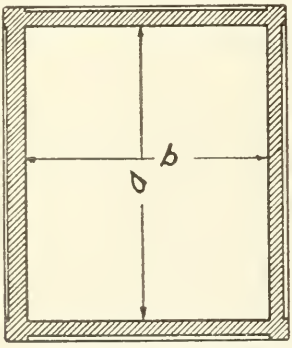
Office Building

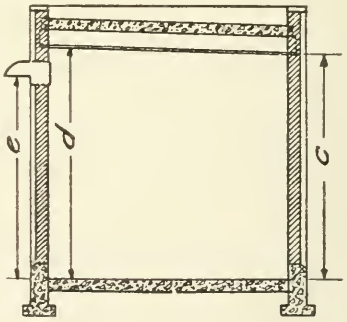
Designs were prepared for a six-storey and basement office building, sufficiently spacious for the needs of the Commission, which is to be erected on a lot with a frontage of 100 feet and a depth of 140 feet, purchased during the year on University Ave. Tenders for the erection of this building was also requested. The contract for the work was awarded to Messrs. Witchall & Son, of Toronto, on October 30th, 1914, who are proceeding with the work.

Distributing Station Standardization

Many of the distributing stations are required to meet similar demands, and are therefore almost identical in arrangement.

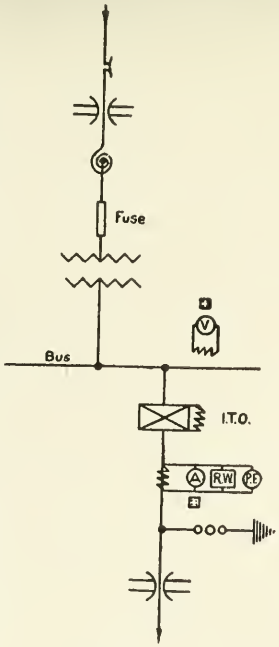
With the idea of standardizing these stations the Commission has prepared building drawings and electrical drawings for several standard layouts, and each type of station represented by a letter, as shown in the following drawings and table:—





Type	a	b	c	d	e	Volts H.T.	Volts L.T.	Trans Kv-a.	H.T. Entr.	L.T. Entr.	Building Drawing	Electrical Layout
	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.							
A	11-0	11-0	9-9	12-6	11-2	13,200	2200	3-25	3	6	3-S -14031	4-S -14032
B	18-0	13-0	12-6	13-0	12-5	13,200	4000Y/2200Δ	3-50	3	9	4-S -14028	4-S -14033
C	20-0	15-0	13-6	14-0	13-6	13,200	4000Y/2200Δ	3-75	3	9	4-S -14026	4-S -14027
D	20-0	15-0	13-9	14-3	13-6	13,200	4000Y/2200Δ	3-150	6	9	4-S -14067	4-S -14062
D1											.....	.....
E	15-0	12-0	12-9¼	14-5½	12-5	13,200	4000Y/2200Δ	3-150	3	6	4-S -14111	3-S -14106
E1											4-S -14137	3-S -14106
F	15-0	12-0	12-9¼	14-5½	12-5	22,000	2200Δ	3-150	3	6	4-S -14111	3-S -14110
F1											4-S -14137	3-S -14110
G	23-0	18-0	14-7	15-2	14-5	26,400	4000Y/2200Δ	3-150	6	9	4-S -14150	4-S -14142
G1											4-S -14151	4-S -14117
H	15-8	13-0	15-1¾	15-3⅜	13-8	26,400	4000Y/2200Δ	3-150	3	9	4-S -14140	4-S -14134
H1											.....	.....

WORK ORDER No.



VOLTAGE
Primary
Secondary
Cycles

TRANSFORMERS
Number Phase
Kv-a. capacity each
Rated volts H.T. L.T.

FEEDERS
Number
No. Max. kv-a. C. Trans. Ratio
1
2
3

SPECIFICATIONS
Building
Transformers
Switching equip't

STATION
Type
Class
Name

STANDARD STATION WIRING DIAGRAM

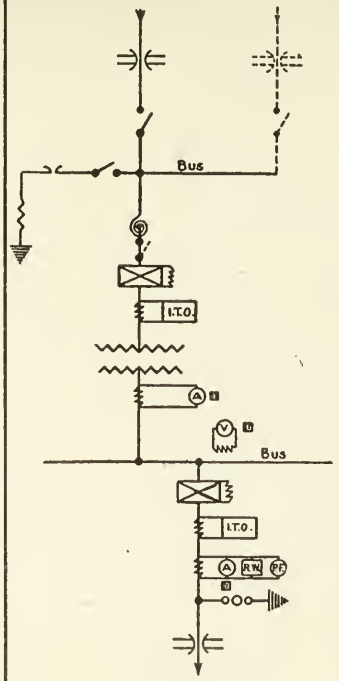
Hydro-Electric Power Commission
of Ontario

Approved

Chief Engineer

Date

WORK ORDER No.



VOLTAGE
Primary
Secondary
Cycles

TRANSFORMERS
Number Phase
Kv-a. capacity each
Rated volts H.T. L.T.

FEEDERS
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SPECIFICATIONS
Building
Transformers
Switching equip't

STATION
Type
Class
Name

STANDARD STATION WIRING DIAGRAM

Hydro-Electric Power Commission
of Ontario

Approved

Chief Engineer

Date

Standard Station Wiring Diagrams

Types "E," "F" and "H" have no inside high-tension oil switch or lightning arrester but are provided instead with a horn type, air break disconnecting switch mounted on a pole outside the station, and a choke coil and disconnecting switch fuses inside the station. Type "E1" differs from "E" in that the building has a concrete roof, whereas "E" has a corrugated iron roof. "G1" building is the reverse of "G." that is, the entrances are on the opposite side with respect to the door. The "G1" electrical layout is also reversed. Such differences as those between "G" and "G1" are necessary because of local conditions, which in this particular case required that the lines come in on the site in a certain way with respect to the entrance to the building.

A building standard specification and an equipment standard specification were prepared to cover any one of these stations. The accompanying illustrations represent two of the standard wiring diagrams that were prepared.

A set of the electrical layout drawings and a copy of the electrical specifications were forwarded to each of the manufacturers. These are kept on file for reference. When tenders are requested, a copy of the wiring diagram with the blanks filled in, is sent with a letter to the manufacturer. This is sufficient to give him the necessary information for submitting his tender.

LOW-TENSION TRANSMISSION LINES

On October 31st, 1914, there were completed or under construction 800 miles of low-tension transmission lines of voltages varying from 46,000 volts to 2,200 volts. This figure includes 16.43 miles of steel lattice pole line. The mileage of these lines is distributed among the various systems as follows:

Niagara System—609.68 miles.
St. Lawrence System—60.77 miles.
Simcoe System—80.15 miles.
Wasdell's Falls System—49.19 miles.

In the construction of these lines, 5,600 miles of wire weighing 3,450,000 lb., 33,000 wood poles and 383 steel towers were used.

On the transmission line poles 685 miles of a single circuit telephone line has been erected for use in operating the system.

During the year 17 gangs were employed, two of which, under the direction of a forestry expert, were employed solely in trimming trees. These gangs constructed 243 miles of transmission line as well as distribution systems in 19 towns and villages and rural lines in 8 townships.

For the above lines about 200 crossing plans were prepared, and submitted to the telephone and railway companies for approval.

Low-tension distributing systems were constructed by the Commission in the towns and villages of Thamesford, Thorndale, Creemore, Cannington, Gamebridge, Brechin, Woodville, Sunderland, Elora, Fergus, Ayr, Drumbo, Plattsville, Princeton, Lucan, Embro, Woodbridge, Milton and Bolton, and rural lines in the townships of E. Flamboro, Waterloo, Norwich, Toronto, Etobicoke, York, Grantham and Brant.

The mileage of lines tabulated according to the voltage and number of circuits is as follows:

Voltage	Single Circuit Totals			Double Circuit Totals			Single and Double Circuits Totals		
	Total Oct. 31, 1913	October 31, 1913, to Oct. 31, 1914	Total Oct. 31, 1914	Total Oct. 31, 1913	October 31, 1913, to Oct. 31, 1914	Total Oct. 31, 1914	Total Oct. 31, 1913	October 31, 1913, to Oct. 31, 1914	Total Oct, 31, 1914
46,000	1.93	.....	1.93	15.50	.....	15.50	17.43	.....	17.43
26,400	.....	94.50	94.50	59.50	7.17	66.67	59.50	101.67	161.17
22,000	89.99	16.00	105.99	63.90	.....	63.90	153.89	16.00	169.89
13,200	161.77	96.25	258.02	115.79	.....	115.79	277.56	96.25	373.81
6,600	6.52	.....	6.52	5.79	.....	5.79	12.31	.....	12.31
4,000	22.80	29.67	52.47	.....	.....	.....	22.80	29.67	52.47
2,200.....	10.35	.75	11.10	1.61	.....	1.61	11.96	.75	12.71
Totals	293.36	237.17	530.53	262.09	7.17	269.26	555.45	244.34	799.79

Description of Lines

NIAGARA SYSTEM

Sec. No.	From	To	Miles	No. of Poles	Voltage	No. of Circuits	Power Cables B. & S. Gauge	Telephone Wires, B. & S. Gauge	Work Commenced	Work Completed	In Operation
L.T.											
1	Dundas Sub H.E.P.C. ..	Junction Pole No. 134..	2.84	134	13,200	2	No. 1/0 Alum	10 Copper	July 13, 1910	Jan. 2, 1911	
2	Junction Pole No. 134..	Beach Pump House....	6.34	323	"	2	1/0 "	10 "	July 13, "	Jan. 2, "	
3	" " No. 134..	Asylum	1.13	67	"	1	2 "	10 "	Dec. 5, "	Feb. 8, "	
4	Berlin Sub. H.E.P.C. ...	Junction Pole No. 10...	.18	10	"	2	1/0 "	10 "	Aug. 25, "	Sept. 11, 1910	
5	Junction Pole No. 10...	Waterloo	1.64	78	"	2	1/0 "	10 "	Sept. 11, "	Nov. 25, "	
6	" " No. 10...	Berlin Corp. Station...	.76	35	"	2	1/0 "	10 "	Aug. 25, "	Sept. 11, "	
7	Berlin Sub. H.E.P.C....	New Hamburg	12.27	556	"	2	2 "	10 "	Sept. 11. "	Jan. 2, 1911	Feb. 3, 1911
8	Woodstock " ...	Ingersoll	9.90	455	"	2	1/0 "	10 "	Nov. 14, "	Mar. 28, "	
9	" " ...	Junction Pole No. 508..	11.12	508	"	2	1/0 "	10 "	Jan. 2, 1911	Apr. 29, "	
10	Junction Pole 508	Tillsonburg	10.30	467	"	2	1/0 "	10 "	Jan. 2, "	Apr. 29, "	
11	" " 508	Norwich	4.59	207	"	1	2 "	10 "	Feb. 13, "	Mar. 30 "	
12	St. Thomas Sub. H.E.P.C	St. Thomas Corp. Stn...	1.13	50	"	2	1/0 "	10 "	Dec. 14, 1910	Dec. 30, 1910	
13	Stratford " ..	Stratford " ..	1.75	78	"	1	2 Copper	10 "	Built by Corporation		
14	Preston " ..	Junction Pole No. 99...	2.04	99	6,600	3	1-2 Alum 2-4/0 "	10 "	Oct. 8, 1910	Jan. 19, 1911	
15	Junction Pole No. 99...	Hespeler	2.08	99	"	1	2 Alum	10 "	Oct. 8, "	Dec. 30, 1910	
16	" " 99...	Galt.....	3.75	173	"	2	4/0 "	10 "	Oct. 8, "	Jan. 19, 1911	
17	Preston Sub H.E.P.C...	Preston Corp. Station..	.14	11	"	1	2 Copper	10 "	Built by Corporation.		
	These poles also carry Section L.T. 35 circuits to G. P. R. Railway Sub.										
18	London Sub.	Junction Pole No. 38..	.79	38	13,200	2	1-3/0 Alum 1-2 "	10 Copper	Oct. 26, 1910	Jan. 10, 1911	
19	Junction Pole No. 38...	Asylum London	1.54	70	"	1	2 "	10 "	Oct. 26, "	Jan. 19. "	
20	" " 38...	Junction Pole No. 93..	1.22	55	"	1	3/0 "	10 "	Oct. 24, "	Jan. 21, "	
21	London Sub. H.E.P.C...	London Sub. No. 1.....	3.56	178	"	1	3/0 "	10 "	Oct. 20, "	Jan. 20, "	
22	Junction Pole No. 93...	" " 1....	1.71	96	"	2	1-3/0 " 1-1/0 "	10 "	Dec. 23, "	Jan. 20, "	
23	" " 93...	" " 2....	.31	20	"	1	1/0 "	10 "	Dec. 23, "	Jan. 20, "	
24	London Sub. No. 1	Springbank.....	3.55	156	"	1	1/0 "	10 "	Jan. 1, 1911	Jan, 7, "	
25	Dundas Sub. H.E.P.C..	Dundas Town	.98	58	2,200	1	400 M.c.m. 250 M.c.m.	Alum Copper	Dec. 1, 1910	Jan. 1, "	
26	Cooksville Sub. H.E.P.C.	Port Credit L.S. Road	2.74	129	13,200	2	2 Alum	10 Copper	Feb. 24, 1911	July 10, "	
26a	Pt. Credit L.S. Road..	Pt. Credit Brick Wks..	.24	14	"	2	2 "	10 "	Apr. 5, "	July 23 "	
27	Cooksville Sub. H.E.P.C.	Brampton	11.24	510	"	2	2 "	10 "	Feb. 15, "	May 6, "	
	These poles also carry Section L.T. 34 Circuits from poles No. 1 to 89—1.94 miles										
28	Stratford Sub. H.E.P.C.	Junction Pole No. 648..	14.39	648	13,200	2	2 Alum	10 Copper	Apr. 6, 1911	Aug. 4, 1911	
	These Circuits carried on Sec. L.T. 13 poles Nos. 2 to 24, inclusive. Sec. L.T. 28 carries L.T. 67 circuits.										

29	Junction Pole No. 648..	Seaforth	12.86	581	13,200	2	2 Alum	10 Copper	Mar. 25, 1911	Sept.13, 1911		
		Sec. L.T. 29 carries L.T. 67 circuits to Seaforth Jct. Pole 1153.										
30	" " 648..	Mitchell	1.27	63	"	2	2 "	10 Copper	Mar. 24, 1911	Aug. 3, "		
31	Guelph Sub. H.E.P.C...	O. A. College	1.56	77	"	1	1/0 "	10 "	July 21, "	Nov. 9, "		
32	" H.E.P.C.Sub. Prop.	.....	.09	8	550D.C.	1	Municipal lines					
					2,200A.C.	4						
					13,200A.C.	3	1/0 Alum	10 "	Aug. 7, 1911	Sept. 3, 1911	Sept.4,1911	
		18 poles on Station Property in all.										
34	Cooksville Sub. H.E.P.C.	Weston	14.07	551	13,200	2	2 Alum	8 "	Apr. 19, "	July 24, "		
		These Circuits carried on Section L.T. 27 poles, 1 to 89, inclusive										
35	Preston Sub. H.E.P.C..	G. P. & H. Ry.	.12	6	6,600	1	1/0 Alum	10 "	Mar. 13, "	Mar. 21, "		
		These Circuits carried on Sections L.T. 17 poles, 1 to 11, inclusive										
36	Jct. Pole No. 84, Port Credit	Mimico (New Toronto)	5.75	266	13,200	1	2 Alum	8 "	Apr. 26, "	Feb. 29, 1912		
38	Dundas Sub. H.E.P.C...	Dom. Sewer Pipe Wks.	7.35	350	"	1	2 "	8 "	July 21, "	Dec. 19, 1911	Apr. 6,1912	
39	Hamilton Asylum P.H..	Hamilton Asylum	.63	30	2,200	2	4 Copper	10 "	Sept. 26, "	Oct. 27, "	Apr. 6, "	
40	Junction Pole No. 260..	Waterdown	1.50	72	13,200	1	2 Alum	8 "	Sept. 30, "	Oct. 10, "	Apr. 6, "	
40a	Dom. Sewer Pipe Wks.	Junction Pole No. 260..	1.92	.....	"	1	2 "	8 "	Sept. 30, "	Oct. 7, "	Mar. 1, "	
41	St. Thos. Sub. H.E.P.C.	Port Stanley	12.27	573	"	1	2 "	8 "	Oct. 16, "	Mar. 8, 1912	Mar. 9, "	
42	Junct. Pole, Sec. L.T. 48 at Beachville	Standard White Lime Co.	1.00	2	2,200	1	2 "	.....	.....	.....	.....	
		These circuits carried on Section L.T. 8 poles, from Beachville pole 290 to pole 240.										
43	Dundas Sub. H.E.P.C..	Jno. Bertram & Son ...	1.21	10	13,200	1	2 Alum	10 Copper	Dec. 1, 1911	Dec. 19, 1911	Dec. 21, '11	
		These Circuits carried on Section L.T. 25 poles, 1 to 58 inclusive.—.98 miles										
45	Jct. Pole No. L.T. 8-240	Beachville	.09	3	13,200	1	1/0 Alum	8 Copper	June 1, 1912	June 29, 1912	July 17, '12	
46	St. Mary's Sub.	St. Mary's Cement Wks.	2.22	80	"	1	3/0 "	8 "	July 15, "	Aug. 19, "	Sep. 7, "	
47	Dundas Sub.	Caledonia	14.36	674	"	1	3/0 "	8 "	May 10, "	Sep. 18, "	" 20, "	
47a	Caledonia	Paris Alabastine Co...	.22	.....	2,200	1	2/0 Copper	.....	Sep. 5, "	Sep. 18, "	" 20, "	
		These Circuits carried on Section L.T. 49 poles.										
48	Caledonia	Junction Pole No. 940..	5.87	267	13,200	1	3/0 Alum	8 Copper	June 22, "	Sep. 18, "	Sep. 20, '12	
49	Junction Pole No. 940..	Hagersville	3.79	176	"	1	2 "	10 "	Feb. 28, 1913	May 2, 1913	Aug. 15,'13	
50	" " 940..	Lythmore	4.98	230	"	1	3/0 "	8 "	June 15, 1912	Sep. 18, 1912	Sep. 20, "	
55	St. Thomas Sub. H.E.P.C	L.L.E. Ry. Sub.	1.68	88	"	1	2 "	8 "	Aug. 9, "	Oct. 11, "	Oct. 27, "	
56	Port Credit	Toronto Golf Club	3.24	11	2,200	1	6 D.B.W.P. Copper ...		June 10, "	Aug. 3, "	Aug. 6, "	
56e	Extension from Sect. L.T. 56 on T.G.C. prop.	Carried on L.T. 36 poles.	.90	37	2,200	1	6 "	.....	Nov. 22, "	Jan. 3, 1913	Dec. 24, "	
57	O. A. College	Guelph Prison Farm, Pole 156	1.93	86	13,200	1	2 Alum	8 Copper	Aug. 19, "	Dec. 14, 1912	Dec. 14, "	
57a	Guelph Prison Farm ..	Property	.08	4	"	1	2 "	10 "	May 14, 1913	May 19, 1913	Sep. 4'13	
58	Guelph Prison Farm, Pole 156	Junction Pole No. 454..	6.42	297	"	1	2 "	8 "	Aug. 19, 1912	Dec. 14, 1912	Dec. 14,'12	
59	Junction Pole No. 454..	Acton	5.82	268	"	1	2 "	8 "	" 19, 1912	Dec. 14, 1912	Dec. 14, "	
60	St. Catharines	Port Dalhousie	3.18	142	2,200	1	1/0 "	.....	Oct. 16, 1912	Nov. 21, "	Nov. 17, "	
61	Caledonia Sub.	Caledonia	.30	.....	"	1	4 D.B.W.P. Copper ...		Nov. 20, 1912	Nov. 30, "	Nov. 30, "	
		Carried on Section L.T. 50 poles.										

NIAGARA SYSTEM—Continued

Sec. No. L.T.	From	To	Miles	No. of Poles	Voltage	No. of Circuits	Power Cable B.&S. Gauge	Telephone Wires. B. & S. Gauge	Work Commenced	Work Completed	In Operation
62	Jct. Pole L.T. 27-230 ..	Milton	16.65	740	13,200	1	3/0 Alum	10	Nov. 25, 1912	Mar. 13, 1913	Mar. 13, '13
63	Preston Sub.	Doon Twine Mill	4.18	208	6,600	1	2 "	.....	Dec. 2, 1912	Apl. 11, "	Apl. 1, "
		Carried on Section L.T. 17 poles, No. 1 to 17, inclusive.									
64	Mimico Sub.	Mimico Asylum	1.51	17	2,200	1	2 Copper	.....	Mar. 30, 1912	Feb. 3, "	Apl. 26, "
		Carried on Section L.T., 36 poles									
65	Acton	Georgetown	9.03	411	13,200	1	3/0 Alum	10	Mar. 11, 1913	Aug. 1, "	Aug. 1, "
66	Junction Pole No. 454..	Rockwood	1.64	77	"	1	2 "	10 CC. Steel	May 6, 1913	July 3, "	Aug. 1, "
67	Stratford Sub. H.E.P.C.	Goderich	48.36	1,007	26,400	2	3/0 "	"	Apr. 23, 1913	June 9, 1914	Dec. 23, "
		Carried on Section L.T. 28 and L.T. 29 poles, to Seaforth Junction from Stratford.									
68	Brant Station	Paris	3.21	152	26,400	2	3/0 Alum	10 CC. Steel	Nov. 11, 1913	Jan. 2, "	Jan. 3, '14
69	" "	Brantford	6.66	320	26,400	2	3/0 "	"	Dec. 15, 1913	Jan. 17, "	Jan. 17, "
71	Waterloo	Elmira	10.93	518	13,200	1	2 "	"	May 17, 1913	Oct. 14, 1913	Oct. 25, '13
72	Preston	Breslau.....	6.48	293	6,600	1	2 "	"	Apr. 4, 1913	ec. 23, 1913	Dec. 23, '13
73	Niagara Falls	Jct. Pole 113	5.00	113	46,000	3	4/0 Copper	8	Mar. 5, 1914	} Steel Towers.	Aug. 20, '14
74	Jct. Pole 113	Union Carbide Co. ..	10.50	235	46,000	3	4/0 "	8	Mar. 5, 1914		Aug. 20, '14
75	Jct. Pole 303	Electric Steel & Metal Co.	1.93	45	46,000	1	2/0 "	8	July 11, 1914		Oct. 17, '14
76	Junction Pole	Crumlin Junction	5.31	218	13,200	1	2 Alum	.....	Sept. 18, 1913	May 8, 1913	Jan. 27, '14
77	Crumlin Junction.....	Thorndale	7.91	310	"	1	2 "	.....	Oct. 10, 1913	Feb. 6, 1914	Feb. 6, "
78	" "	Thamesford	6.85	281	"	1	2 "	.....	Oct. 13, 1913	Jan. 19, "	Jan. 27, "
79	Junction Pole No. 381-62.	Streetsville.....	.43	19	"	1	2 "	10 CC. Steel	Nov. 1, 1913	Nov. 24, 1913	Nov. 24, '13
80	" "	Clinton	1.27	62	26,400	2	3/0 "	"	Sept. 20, 1913	Feb. 15, 1914	
81	Essex Sta.	Jct. Pole	1.10	55	"	4	3/0 "	10	July 28, 1914	Sept. 6, 1914	Sep. 6, '14
82	Jct. Pole	Windsor	2.27	102	"	2	3/0 "	10	July 31, 1914	Sept. 18, 1914	Sep. 18, "
83	Jct. Pole	Walkerville	1.30	61	"	2	3/0 "	10	June 2, 1914	Aug. 1, 1914	Sep. 6, "
84	Kent Sta.	Chatham	2.50	133	"	2	2/0 "	10			
85	Jct. Pole L.T. 57-118 .	Jct. Pole L.T. 85-776..	14.65	658	13,200	1	3/0 "	10	June 3, 1914	Oct. 17, 1914	Oct. 22, "
86	Jct. Pole L.T. 85-776..	Elora	1.10	58	"	1	3/0 "	10	Aug. 18, 1914	Oct. 28, 1914	Oct. 22, "
87	Jct. Pole L.T. 85-776..	Fergus	1.90	93	"	1	3/0 "	10	Aug. 1, 1914	Oct. 13, 1914	Oct. 22, "
88	Paris	Jct. Pole	7.00	301	26,400	1	1/0 "	10	July 21, 1914	Nov. 30, 1914	Dec. 1, "
89	Jct. Pole	Ayr	2.00	90	"	1	1/0 "	10	Sept. 15, 1914	Nov. 30, 1914	Dec. 1, "
90	Jct. Pole	Drumbo	8.00	352	"	1	1/0 "	10	July 13, 1914	Nov. 30, 1914	Dec. 1, "
91	Drumbo	Princeton	5.00	215	4,000	1	6 Copper	..	Aug. 17, 1914	Nov. 30, 1914	Dec. 18, "
92	Drumbo	Plattsville	8.00	301	"	1	4 "	..	Aug. 17, 1914	Nov. 30, 1914	Dec. 1, "
		1.00 miles on L.T. 90 poles									
93	Jct. Pole L.T.-77	Deller Bros.	1.00	40	4,000	1	6 Copper	..			
94	Jct. Pole L.T. 65	I. P. B. Co.	5.08	221	13,200	1	1/0 Alum	10	June 10, 1914	June 31, 1914	July 3, "
95	London	Lambeth	10.00	500	"	1	3/0 "	10	Sept. 1, 1914	Nov. 30, 1914	Nov. 30, "
96	Lambeth	Komoka Jct.	6.00	300	"	1	3/0 "	10	Oct. 15, 1914	Nov. 30, 1914	Nov. 30, "

97	Komoka Jct.	Mt. Brydges	4.50	225	13,200	1	3/0 "	10	Sept.29, 1914	Nov. 30, 1914	Nov. 30, '14
98	Mt. Brydges	Strathroy	8.00	400	"	1	3/0 "	10	Sept.14, 1914	Nov. 30, 1914	Nov. 30, "
99	London	Lucan	19.00	855	"	1	2 S.R. "	10 BWG Galv. Iron	Oct. 23, 1914	Jan. 20, 1915	Jan. 21, '15
101	Kent Sta.	Tilbury	17.00	90	26,400	1	2 S.R. "	10	Jan. 13, 1915		
			15.00 miles on H.T. Telephone Line								
102	Kent Sta.	Jct. L.T. 102	1.50	75	26,400	1	1/0 Alum	10	Oct. 28, 1914	Feb. 3, 1915	Feb. 3, 15
103	Jct. Pole L.T. 102	Jct. Pole L.T. 103	10.00	500	"	1	1/0 "	10	Oct. 30, 1914	Feb. 3, 1915	Feb. 3, "
104	Jct. Pole L.T. 103	Wallaceburg	9.00	450	"	1	1/0 "	10	Nov. 6, 1914	Feb. 3, 1915	Feb. 3, "
105	Jct. Pole L.T. 103	Dresden	7.00	350	"	2	3/0 "	10			
106	Jct. Pole	Embro	7.00	350	13,200	1	1/0 "	10	Oct. 1, 1914	Dec. 24, 1914	Dec. 22, '14
107	Jct. Pole L.T. 34	Woodbridge	7.00	350	"	1	1/0 "	10	Sept.25, 1914	Oct. 21, 1914	Dec. 2, "
108	Woodbridge	Bolton	12.00	600	"	1	3/0 "	10	Oct. 20, 1914	Nov. 26, 1914	Jan. 26, '15
109	Jct. Pole	W. T. & I. Ry.	.02	2	"	1	2 "	10	Sep. 12, 1914	Sep. 12, 1914	Sep. 13, '14
110	Mimico Sub.	Prison Brick Yard	.75	36	2,200	1	2/0 Copper	..	Oct. 24, 1914		
111	Brant Sub.	Jct. Pole 111	6.00	240	26,400	1	2 S.R. Alum	10	Nov. 6, 1914		
112	Jct. Pole 111	Burford	4.00	160	"	1	2 S.R. "	10	Nov. 21, 1914		
113	Jct. Pole 111	Waterford	14.00	560	"	1	2 S.R. "	10	Nov. 21, 1914		
114	Waterford	Simcoe	9.00	360	"	1	2 S.R. "	10	Nov. 26, 1914		
115	Tilbury	Comber	8.00	350	4,000	1	1/0 Copper	..			

SEVERN SYSTEM

S.L.												
1	Waubaushene (S.R. & P. Co.)	Jct. Pole (Coldwater)	4.29	193	22,000	2	4/0 Alum	10 CC.Steel	Sep. 20, 1912	Feb. 18, 1913	Feb. 24, '13
2	Jct. Pole (Coldwater)	Coldwater Sub.	1.16	55	"	1	2 "	"	Sep. 20, 1912	Feb. 18, "	Feb. 24, "
3	" " "	Jct. Pole (Elmvale)	15.86	710	"	2	4/0 "	"	Sep. 25, 1912	Feb. 18, "	Feb. 24, "
4	" " (Elmvale)	Elmvale Sub.	.42	19	"	1	2 "	"	Feb. 1, 1913	May 17, "	May 27, "
5	" " "	Jct. Pole (Phelpston)	4.55	207	"	2	4/0 "	"	Oct. 20, 1912	Feb. 18, "	Feb. 24, "
6	" " (Phelpston)	Barrie Sub.	12.27	550	"	2	2/0 "	"	Nov. 6, 1912	Apl. 5, "	April 6, "
7	" " "	Jct. Pole (Stayner)	15.07	675	"	2	3/0 "	"	Oct. 23, 1912	Feb. 18, "	Feb. 24, "
8	" " (Stayner)	Stayner Sub.	1.50	68	"	1	2 "	"	Jan. 24, 1913	Apl. 26, "	Sep. 25, "
9	" " "	Collingwood Sub.	11.86	530	"	2	3/0 "	"	Nov. 1, 1912	Feb. 18, "	Feb. 24, "
10	Stayner	Creemore	7.67	348	4,000	1	1/0 "	.....	Aug. 15, 1914	Oct. 25, 1914	Oct. 21, '14
15	Jct. Pole L.T. 37	Pt. McNichol	1.00	51	22,000	1	1/0 "	10			
L.T. 37	Midland (S.R. & P. Co.)	Penetang Sub.	4.50	223	"	1	2 "	10 CC.Steel	June 7, 1911	July 18, 1911	July 18, '11

ST. LAWRENCE SYSTEM

StL.											
1	Morrisburg	Prescott	22.96	1,083	22,000	1	3/0 Alum	10 CC.Steel	Oct. 29, 1912	June 14, 1912	Oct. 23, '13
2	"	Winchester	16.29	747	"	1	3/0 "	"	June 4, 1913	Dec. 15, 1913	Dec. 18, "
3	Winchester	Chesterville	6.52	294	"	1	3/0 "	"	Sept. 6, "	Feb. 17, 1914	Feb. 7, '14
5	Prescott	Brockville	15.00	753	22,000	1	3/0 "	"	Oct. 6, 1914	.....	.....

WASDELL'S FALLS SYSTEM

Sec. No.	From	To	Miles	No. of Poles	Voltage	No. of Circuits	PowerCables B.&S Gauge	Telephone Wires B. & S. Gauge	Work Commenced	Work Completed	In Operation
W.L 1	Wasdell's Falls	Jct. No. 1	25.50	1,203	22,000	1	No. 1/0 Alum	10 CC. Steel	Jan. 17, 1914	Sept. 28, 1914	Sep. 28, '14
2	Jct. No. 1	Beaverton	1.47	70	22,000	1	No. 1/0 Alum	10 CC. Steel	Mar. 30, 1914	"	Sep. 28, "
3	Jct. No. 1	Cannington	9.67	442	22,000	1	No. 1/0 Alum	10 CC. Steel	Feb. 18, 1914	"	Sep. 28, "
4	Beaverton	Gamebridge	6.50	.....	4,000	1	No. 1/0 Alum	.....	May 2, 1914	.....	Oct. 6, "
5	Gamebridge	Brechin	3.75	.....	Carried on Sees. W.L. 1 & 2 poles 4,000	1	No. 1/0 Alum	.....	July 25, 1914	.....	Oct. 6, "
6	Cannington	Woodville	5.15	147	Carried on Sec. W.L. 1 poles 4,000	1	No. 1/0 Alum	.....	May 19, 1914	.....	Oct. 19, "
7	Cannington	Sunderland	7.40	335	4,000	1	No. 1/0 Alum	.....	June 1, 1914	July 10, 1914	Oct. 19, "

Total Mileage of Lines and Number of Poles

—	Total to Oct. 31st, 1913	Oct. 31st, 1913, to Oct 31st, 1914	Total to Oct. 31st, 1914
Total mileage low tension lines	555.45	244.34	799.79
Total mileage single circuit lines	293.36	237.17	530.53
Total mileage double circuit lines	262.09	7.17	269.26
Total mileage low tension telephone lines	471.71	213.92	685.63
Total mileage lines completed	357.47	240.07	597.54
Total mileage lines under construction	198.00	.....	202.25
Total number of poles	22,458	10,587	33,045

Total Weights and Mileages of Cable

—	Wire Miles			Weight in Pounds		
	Total to Oct. 31st, 1913	Oct. 31st, 1913, to Oct. 31st, 1914	Total to Oct. 31st, 1914	Total to Oct. 31st, 1913	Oct. 31st, 1913, to Oct. 31st 1914.	Total to Oct. 31st, 1914
Aluminum Cable	2,444.19	471.68	2,915.87	1,654,453	322,612	1,977,065
Copper Wire	183.00	71.67	254.67	546,850	87,316	634,166
Copper Clad Steel Wire	990.59	409.33	1,399.92	172,360	63,036	235,396
Galv. Iron Wire	.....	39.90	39.90	.....	10,374	10,374
Galv. Steel Cable	511.06	243.59	754.65	324,012	154,436	478,448
Reinforced Al. Wire	.....	255.21	255.21	.....	121,007	121,007
Totals	4,128.84	1,491.38	5,620.22	2,697,675	758,781	3,456,456

Gauge, Length and Weight of Telephone Wire

Gauge	Wire Miles			Weight in Pounds			Mileage Single Circuit Lines		
	Total to Oct. 31, 1913	Oct. 31, 1913, to Oct. 31, 1914	Total to Oct. 31, 1914	Total to Oct. 31, 1913	Oct. 31 1913, to Oct. 31, 1914	Total to Oct. 31, 1914	Total to Oct. 31, 1913	Oct. 31, 1913, to Oct. 31, 1914	Total to Oct. 31, 1914
No. 10 B.W.G. galv. iron	.....	39.90	39.90	.....	10,374	10,374	.....	19.00	19.00
No. 8 B. & S., C.C. steel	217.69	.....	217.69	53,334	.....	53,334	103.66	.....	103.66
No. 10 B. & S., C.C. steel	772.90	409.33	1,182.23	119,026	63,036	182,062	368.05	194.92	562.97
Totals	990.59	449.23	1,439.82	172,360	73,410	245,770	471.71	213.92	685.63

Gauge, Length and Weight of Conductors

Browne and Sharp Gauge	Wire Miles			Weight Pounds			Miles Single Circuit Lines			Miles Double Circuit Lines		
	Total to Oct. 31, 1913	Oct. 31, 1913, to Oct. 31, 1914	Total to Oct. 31, 1914	Total to Oct. 31, 1913	Oct. 31, 1913, to Oct. 31, 1914	Total to Oct. 31, 1914	Total to Oct. 31, 1914	Oct. 31, 1913, to Oct. 31, 1914	Total to Oct. 31, 1914	Total to Oct. 31, 1913	Oct. 31, 1913 to Oct. 31, 1914	Total to Oct. 31, 1914
400,000 c.m. Aluminum	1.67	.....	1.67	3,205	.....	3,205	.53	.....	.53	.....	.....	.....
4/0 Alum	192.09	.....	192.09	373,423	.....	373,423	.....	.....	.....	30.49	.....	30.49
3/0 "	879.02	266.14	1,145.16	717,280	217,170	934,450	106.16	73.15	179.31	86.43	5.67	92.10
2/0 "	77.30	.....	77.30	47,704	.....	47,704	.....	.....	.....	12.27	.....	12.27
1/0 "	499.18	205.54	704.72	256,079	105,442	361,521	70.05	65.25	135.30	44.21	.....	44.21
2 "	794.93	.....	794.93	256,762	.....	256,762	114.20	.....	114.20	69.08	.....	69.08
2 S.R "	.....	239.46	239.46	.....	115,180	116,180	.....	76.02	76.02	.....	.....	.....
4 S.R "	.....	15.75	15.75	.....	5,827	5,827	.....	.....	.....	.....	2.50	2.50
250,000 c.m. Copper	1.42	.....	1.42	2,043	.....	2,043	.45	.....	.45	.....	.....	.....
4/0 Copper	146.47	.....	146.47	502,831	.....	502,831	15.50	.....	15.50	15.50	.....	15.50
2/0 "	6.77	2.37	9.14	15,618	5,467	21,085	2.15	.75	2.90	.....	.....	.....
1/0 "	.....	25.20	25.20	.....	46,569	46,569	.....	8.00	8.00	.....	.....	.....
2 "	10.39	.....	10.39	13,309	.....	13,309	3.30	.....	3.30	.....	.....	.....
4 "	4.91	25.20	30.11	4,443	22,806	27,249	.30	8.00	8.30	.63	.....	.65
6 "	13.04	18.90	31.94	8,606	12,474	21,080	4.14	6.00	10.14	.....	.....	.....
Totals	2,627.19	798.56	3,425.75	2,201,303	530,935	2,732,238	316.78	237.17	553.95	258.61	8.17	266.78

SECTION III

OPERATION OF THE SYSTEMS

NIAGARA SYSTEM

The general operation of the Niagara System for the past fiscal year has been very satisfactory. The power supply furnished the Commission by the Ontario Power Company has been practically continuous throughout the year. The Company has set apart a section of their equipment for the sole use of the Commission to admit of correction for voltage variation during periods of light load and to insure continuous service.

The greatly reduced number of high-tension interruptions which may be attributed to insulator trouble without doubt, indicate the efficiency of the system devised during the previous year to eliminate defective insulators from the line. During the past year all the insulators on the entire system have been twice subjected to this "test" and the defective units immediately replaced. It is believed that trouble in the future from this source will thus be entirely eliminated.

During the year thirty-three different electrical storms were reported over the system, of these ten were severe and the balance moderate. The first storm occurred on March 25th and the last on October the 10th. Seven of these storms traversed the entire system, while the remainder were distributed mainly along the north side of the Western Loop.

This year, as in preceding years, Cooksville and St. Mary's appear to be the vicinities in which the electrical storms are more prevalent and severe than on other parts of the Commission's system. There were only two total interruptions of the service during the past year, these were due to lightning and only momentary.

The high-tension transmission line is in good condition at the present time and the cable required little or no attention during the past year. There are now two new circuits of No. 6/0 B. & S. gauge steel-reinforced aluminum cable between Dundas and London. The work of stringing the new cable and taking down the old single circuit No. 3/0 B. & S. gauge aluminum cable having been carried out by the Operating Department. The presence of three separate circuits between Dundas and London has done much to increase the flexibility of the operation of the system and the reliability of the service. The operating characteristics of the steel-reinforced aluminum cable have, up to the present time, fully confirmed the advantage expected from the adoption of this cable in preference to the straight aluminum cable heretofore used. The new section of high-tension transmission line between St. Thomas and Windsor was put into permanent service on August 16th, after the usual preliminary tests had been satisfactorily concluded. The municipalities of Windsor and Walkerville were supplied with power on August 20th and 28th respectively. This increases the distance of high-tension transmission of power on the Niagara System from 171 miles to 274 miles.

The low-tension lines on the Niagara System have given satisfactory operation, the installation of sectionalizing and tap switches having greatly facilitated the maintenance of power supply and increased the efficiency of operation.

The low-tension lines from Stratford to Seaforth and Mitchell and also from Dundas to Hamilton were gone over and straightened and the sags readjusted where necessary.

The electrical and mechanical equipment of the high-tension stations is in first-class condition and is operating very satisfactorily. During the year all of the high and low-tension oil circuit breakers have been overhauled, the oil filtered and contacts renewed.

The installation of the emergency high-tension bus bars in the various stations has been continued, and now all stations are so equipped that a single operator can put the spare transformer into circuit in the place of any damaged one in a very few minutes.

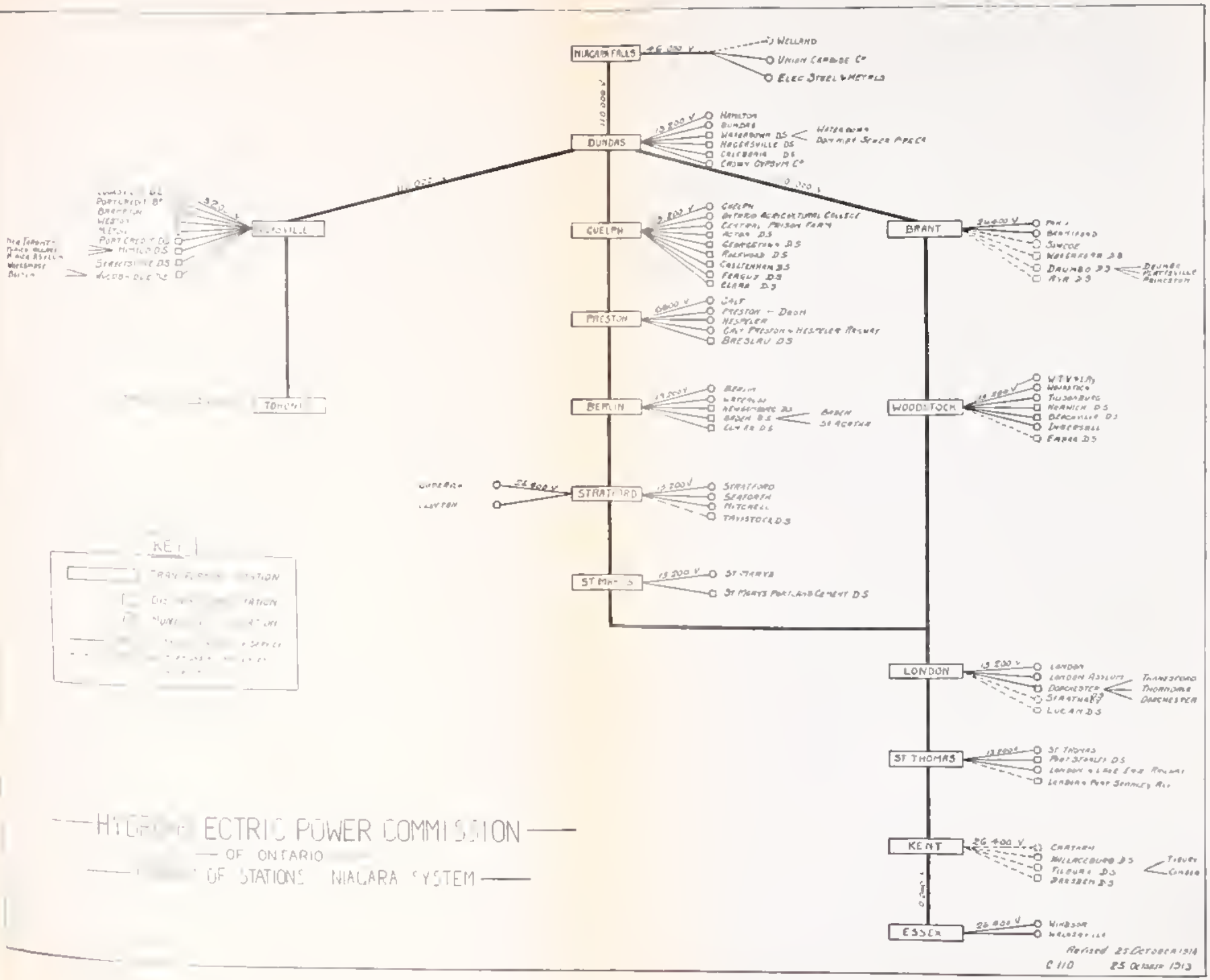
The floors of all the small distributing stations have been painted and the stations and the grounds about them cleaned up generally.

The Commission has also given considerable assistance to the various municipalities in overhauling their equipment, as in many cases such repairs are beyond the capacities of the municipal representatives, and it would be too expensive for them to maintain proper apparatus.

The improvement of the interior and surrounding grounds of the high-tension stations has been continued with a very pleasing effect. In the stations, enclosed offices have been erected to accommodate the operator's desk. These offices will effect a considerable saving in the coal required for the heating of the stations during the winter as they may be heated electrically with "off-peak" power thus obviating the necessity of heating the entire station to a comfortable temperature.

The roadways leading to high-tension stations were considerably improved in the spring. The old roadway leading to Dundas high-tension station immediately adjoining the Des Jardins Canal was considered entirely unsafe for the transportation of heavy electrical equipment and to provide a suitable approach to the station it was decided to build a new roadway. Accordingly a right-of-way 35 feet wide and 1,200 feet long was purchased a few feet north of the old roadway. After the necessary grading and preparation of the ground a wet macadam road was laid at a very reasonable cost. The construction of this roadway has filled a long felt want in addition to its improved appearance over the old road.

The following municipalities were supplied with power during the fiscal year. The tables given below as well as the accompanying curve, show the increases in the loads:


NIAGARA FALLS
26 400 V
WELLAND
UNION CARBIDE Co
ELEC STEEL & METALS
110 000 V
DUNDAS
13 200 V
HAMILTON
DUNDAS
WATERDOWN DS
DOMINION STEEL & FDRY Co
HAGERSVILLE DS
CALEDONIA DS
CANADA GYPSUM Co
22 000 V
GUELPH
2 300 V
GUELPH
ONTARIO AGRICULTURAL COLLEGE
CENTRAL PRISON FARM
ACTON DS
GEORGETOWN DS
ROCKWOOD DS
COOLTENHAM DS
FERGUS DS
ELORA DS
BRANT
2 400 V
PARIS
BRANTFORD
SIMCOE
WATERFORD DS
DAUMBO DS
AVR DS
DUMBO
PORTERSVILLE
PRINCETON
PRESTON
6 600 V
GALT
PRESTON - DOON
HESPELER
GALT PRESTON & HESPELER RAILWAY
BRESLAU DS
BERLIN
13 200 V
BERLIN
WATERLOO
NEW HAMBURG DS
ARDEN DS
ARDEN
ST AGATHA
CLAIRE DS
WOODSTOCK
13 200 V
WOODSTOCK
HOLBROOK
TILLSONBURG
NORWICH DS
BEACHVILLE DS
INGERSOLL
EMBRO DS
STRATFORD
26 400 V
STRATFORD
SEAFORTH
MITCHELL
TAVISTOCK DS
ST MARYS
13 200 V
ST MARYS
ST MARYS PORTLAND CEMENT DS
LONDON
13 200 V
LONDON
LONDON ASYLUM
DORCHESTER
STRATHROY
LUCAN DS
TRANSFORD
THORNDALE
DORCHESTER
ST THOMAS
ST THOMAS
PORT STANLEY DS
LONDON & LAKE ERIE RAILWAY
LONDON & PORT STANLEY RY
KENT
26 400 V
CHATHAM
WALLACEBURG DS
TILBURY DS
DRESDEN DS
TILBURY
CANADA
ESSEX
26 400 V
WINDSOR
WALKERVILLE
KEY
HYDRO-ELECTRIC POWER COMMISSION
OF ONTARIO
DIAGRAM OF STATIONS NIAGARA SYSTEM
Revised 25 OCTOBER 1914
C 110
25 October 1913

Municipality	Load in H.P. Oct. 1913	Load in H.P. Oct. 1914	Difference in H.P.	
			Increase	Decrease
Toronto	17997.5	21508.5	3511.	....
Hamilton	3639.5	6340.5	2701.	....
London	3385.	5047.	1662.	....
Guelph	1488.	1427.5	....	60.5
Berlin	1434.5	1816.5	382.	....
St. Thomas	1173.	1662.	489.	....
Galt	1025.5	1103.	77.5	....
Preston	931.5	804.	....	127.5
Woodstock	808.5	840.	31.5	....
Stratford	791.	837.5	46.5	....
Welland	536.	500.	....	36.
Brampton	474.5	493.	18.5	....
Ingersoll	469.	321.5	....	147.5
Waterloo	409.	453.	44.	....
St. Mary's	368.5	342.	....	26.5
Milton	321.5	143.5	....	178.
Dundas	268.	312.5	44.5	....
Hespeler	254.5	212.	....	42.5
Seaforth	214.5	225.	10.5	....
Tillsonburg	208.	205.	....	3.0
Mitchell	201.	111.	....	90.
Baden	165.	149.	....	16.
New Hamburg	153.	104.5	....	48.5
Weston	151.5	149.	....	2.5
Hagersville	120.5	76.	....	44.5
Norwich	104.5	84.5	....	20.
Beachville	100.5	131.5	31.	....
Georgetown	83.	119.5	36.5	....
Toronto Township	80.5	126.	45.5	....
Port Stanley	73.	66.	....	7.0
Mimico	71.	114.	43.	....
Acton	56.	69.5	13.5	....
Waterdown	41.5	72.5	31.	....
Port Credit	33.5	55.	21.5	....
Caledonia	32.	33.5	1.5	....
Rockwood	25.	29.5	4.5	....
Elmira	....	59.	59.	....
Streetsville	50.	50.	....	....
Cooksville	5.	31.	26.	....
Port Dalhousie	94.	119.	25.	....
Mimico Asylum	161.	231.3	70.3	....
Ontario Agricultural College	129.	142.5	13.5	....
London Asylum	120.	94.	....	26.
Hamilton Asylum	80.5	87.	7.5	....
Central Prison Farm (Guelph)	31.	47.	16.	....

A list of the municipalities connected to the Niagara System during the past year is given below:

Municipality	Date connected	Initial Load H.P.	Present Load H.P.	Increase H.P.
Goderich	Dec. 28, 1913	187.5	214.5	27.
Paris	Jan. 4, 1914	228.	222.5	....
Brantford	Jan. 17, 1914	134.	974.5	840.5
Thorndale	" 27, 1914	14.	13.	....
Thamesford	" 27, 1914	10.	37.	27.
New Toronto	" 30, 1914	10.	10.	....
Clinton	Feb. 15, 1914	67.	95.	28.
St. Catharines	Apr. 1, 1914	1045.	1019.	....
Terra Cotta	July 3, 1914	35.	45.5	10.5
Windsor	Aug. 20, 1914	590.	590.	....
Elora	Oct. 22, 1914	80.5	80.5	....
Fergus	" 22, 1914	53.5	53.5	....
Walkerville	" 28, 1914	33.5	33.5	....

The Capital Investment of the Niagara System in Operation at October 31st, 1914, is as follows:

Right-of-Way	$574,806 67
Steel Tower Transmission Lines	2,095,009 89
Telephone Lines	129,706 69
Relay System Lines	54,537 32
Conduit System, Ontario Power Company to Niagara Station	66,844 67
Wood Pole Lines	1,047,924 46
Transformer Stations	1,905,352 25
Distributing Stations	86,674 65
Total	$5,960,856 60

The Total Expenditures in connection with the Operation and Maintenance of the Niagara System for the Fiscal Year 1913-1914 are as follows:

Operators' Salaries and Expenses, including Operating Supplies	$53,008 35
Maintenance of Steel Towers and Telephone Lines	55 597 73
Maintenance of Low-Tension Lines	10.673 00
Maintenance of Transformer Stations	27,942 59
Maintenance of Distributing Stations	1,632 98
Administration and General Office Expenses	32,703 93
	$181,558 58
Interest at 4% per Annum on Invested Capital	204,943 81
Cost of Power at Niagara Falls	465,098 31
	$851,600 70

A summary of the Financial Statement of the Niagara System Operation for the Fiscal Year ending October 31st, 1914, is given below:

RECEIPTS

Power delivered, including charges for administration, general expenses, operation, maintenance and interest	$994,253 98

DISBURSEMENTS

Power purchased, including losses in transmission and transformation, administration, general expenses, maintenance and interest	851,600 70
Surplus	$142,653 28

Third Annual Adjustment of Capital Expenditures, Operating Expenses and Fixed Charges

NIAGARA SYSTEM. FISCAL YEAR 1913-1914

Municipalities.	Rate	Yearly average H.P.	Capital Cost	Interest	Maintenance	Operation	Total Interest Maintenance and Operation	Cost of Power including losses	*Total Expenditure	* Receipts	Surplus Applicable to Depreciation Reserve Ac.	Shortage on Interest Account	Surplus Applicable to Depreciation Reserve Ac.
	$		$	$	$	$	$	$	$	$	$	$	$
Toronto	15.00	20597.	1,248,301.74	46,812.36	24,027.61	13,437.28	84.277.25	188,752.56	273,029.81	308,955.61	35,925.80	.....	.....
Port Credit.	28.00	72.8	10,279.99	391.04	189.35	211.64	792.03	666.93	1,458.96	2,022.27	563.31	.....	.....
Weston	30·00	275.1	66,610.56	2,585.85	1,367.83	674.04	4,627.72	2,521.48	7,149.20	8,617.01	1,467.81	.....	.....
Brampton	25.00	722.2	96,998.18	3,705.57	1,966.88	1,639.16	7,311.61	6,618.53	13,930.14	19,071.13	5,140.99	.....	.....
Milton	28.00	465.9	87,947.87	3,406.30	1,430.64	1,022.95	5,859.89	4,270.11	10,130.00	12,948.65	2,818.65	.....	.....
Mimico	28.00	154.5	24,943.70	949.56	529.36	423.09	1,902.01	1,415.92	3,317.93	4,334.93	1,017.00	.....	.....
New Toronto.	28.00	12.2	1,971.30	75.04	41.83	45.07	161.94	111.91	273.85	339.32	65.47	.....	.....
Streetsville	34.00	199.9	29,956.88	1,100.34	761.11	411.62	2,273.07	1,830.70	4,103.77	6,435.55	2,331.78	.....	.....
Toronto Tp.	25.00	140.5	20,074.61	769.18	359.29	495.53	1,624.00	1,287 61	2,911.61	3,645.23	733.62	.....	.....
Dundas	15.00	535.9	32,815.84	1,184.60	545.47	619.09	2,349.16	4,910.76	7,259.92	8,562.26	1,302.34	.....	.....
Hamilton	15.00	5676.1	363,770.26	13,191.50	6,370.25	6,080.07	25,641.82	52,016.17	77,657.99	95,134.79	17,476.80	.....	.....
Waterdown	26.00	80.2	13,462.06	519.29	257.16	195.07	971.52	734.64	1,706.16	2,100.47	394.31	.....	.....
Caledonia	24.00	30.8	3,940.38	149.97	56.93	103.59	310.49	282.14	592.63	755.54	162.91	.....	.....
Hagersville	33.21	109.7	30,244.88	1,180.08	444.89	263.80	1,888.77	1,006.13	2,894.90	3,562.42	667.52	.....	.....
Guelph	21.00	1608.	181,020.26	6,826.37	4,536.96	3,959.13	15,322.46	14,736.00	30,058.46	34,879.53	4,821.07	.....	.....
Acton	36.00	71.6	22,362.95	873.87	546.58	217.54	1,637.99	656.02	2,294.01	2,517.85	223.84	.....	.....
Rockwood	38.00	32.1	13,424.33	515.13	348.97	130.19	994.29	294.40	1,288.69	1,188.67	.....	100.02	.....
Georgetown	36.00	116.3	57,296.91	2,247.35	1,540.46	449.78	4,237.59	1,065.54	5,303.13	4,003.66	.....	1,299.47	.....
Preston	21.00	1293.1	151,896.63	5,604.44	3,126.56	1,691.03	10,422.03	11,849.86	22,271.89	27,286.23	5,014.34	.....	.....
Galt	21.50	1430.8	165,569.14	6,241.35	3,415.12	2,236.97	11,893.44	13,111.66	25,005.10	30,715.36	5,710.26	.....	.....
Hespeler	23.00	305.4	36,541.57	1,380.23	786.30	470.47	2,637.00	2,799.25	5,436.25	6,885.96	1,449.71	.....	.....
Berlin	21.50	1741.9	204,880.92	7,717.85	5,887.68	3,137.51	16,743.04	15,962.91	32,705.95	37,452.08	4,746.13	.....	.....
Waterloo	22.50	444.4	56,556.84	2,140.48	1,607.01	821.27	4,568.76	4,072.52	8,641.28	10,045.16	1,403.88	.....	.....
New Hamburg.	32.00	146.5	37,427.21	1,456.57	1,173.16	401.68	3,031.41	1,342.54	4,373.95	5,118.26	744.31	.....	.....
Baden	32.00	145.2	31,456.51	1,230.29	953.18	380.63	2,564.10	1,330.62	3,894.72	4,645.31	750.59	.....	.....
Elmira	38.00	74.1	35,665. 46	1,264.25	528.92	178.13	1,971.30	679.06	2,650.36	2,844.81	194.45	.....	.....
Stratford.	30.00	826.6	150,627.63	5,766.64	4,948.33	2,430.18	13,145.15	7,575.03	20,720.18	25,427.45	4,707.27	.....	.....
Seaforth	40.00	206.3	74,223.25	2,904.41	1,742.45	576.27	5,223.13	1,890.55	7,113.68	8,542.84	1,429.16	.....	.....
Mitchell	37.00	145.5	40,969.32	1,593.28	1,307.39	405.33	3,306.00	1,333.37	4,639.37	5,383.42	744.05	.....	.....
Clinton	39.00	50.6	33,427.12	1,045.40	430.31	204.16	1,679.87	463.70	2,143.57	1,972.70	.....	170.87	.....
Goderich	37.00	143.	125,532.71	3,853.90	1,091.74	665.57	5,611.21	1,310.46	6,921.67	5,711.90	.....	1,209.77	.....

St. Mary's	29.50	1821.3	378,790.88	14,466.03	8,923.18	3,997.51	27,386.72	16,690.54	44,077.26	54,467.54	10,390.28	.....	.....
Woodstock	23.00	817.6	120,208.09	4,258.30	2,654.16	2,013.15	8,925.61	7,492.26	16,417.87	19,247.61	2,829.74	.....	.....
Ingersoll	25.50	438.3	87,466.37	3,200.59	1,836.87	1,174.25	6,211.71	4,017.13	10,228.84	11,613.24	1,384.40	.....	.....
Tillsonburg ...	32.00	218.	76,070.17	2,861.89	1,693.17	569.99	5,125.05	1,997.45	7,122.50	7,062.07	.....	60.43	.....
Norwich..... ..	32.00	92.4	32,627.87	1,233.33	861.76	245.16	2,340.25	846.79	3,187.04	2,951.63	.....	235.41	.....
Beachville	31.00	102.3	23,256.82	853.75	560.40	331.10	1,745.25	937.56	2,682.81	3,165.28	482.47	.....	.....
London.....	23.00	4203.9	708,460.39	23,269.54	13,886.66	6,405.73	43,561.93	38,525.41	82,087.34	97,421.80	15,334.46	.....	.....
Thamesford ..	45.00	20.3	19,335.62	520.65	282.63	77.80	881.08	185.92	1,067.00	907.45	.....	159.55	.....
Thorndale	45.00	10.6	16,289.94	434.75	162.97	57.25	654.97	96.71	751.68	469.37	.....	282.31	.....
St. Thomas...	28.00	1807.6	471,869.45	15,850.43	7,750.07	4,184.63	27,785.13	16.564.70	44,349.83	50,007.81	5,657.98	.....	.....
Port Stanley {	9. + 243.67	119.4	55,004.26	1,998.18	1,525.62	275.11	3,798.91	1,094.49	4,893.40	4,545.58	.....	347.82	.....
Brantford	19.50	582.2	139,269.00	4,298.33	1,520.02	2,298.20	8,116.55	5,335.33	13,451.88	11,387.65	.....	2,064.23	.....
Paris	21.00	158.	43,040.64	1,323.02	432.76	910.22	2,666.00	1,447.92	4,113.92	3,573.32	.....	540.60	.....
Niagara Dist.	14.00	2506.2	338,970.09	1,692.53	276.90	353.75	2,323.18	22,967.02	25,290.20	36,327.26	11,037.06	.....	.....
Totals....	.....	50,752.3	5,960,856.60	204,943.81	114,686.89	66,871.69	383,502.39	465,098.31	851,600.70	994,253.98	149,123.76	6,470.48	142,653.28

* Total Expenses including losses in transmission and transformation, administration and Cost of Power, General Expenses, Operation, Maintenance and Interest.

PORT ARTHUR SYSTEM

The increase in the load of the Port Arthur System has been very satisfactory during the past year and the outlook for the coming year is very promising. The percentage of interruptions has been very small and no failure of apparatus in the substation has occurred.

The new extension of the high-tension station has been completed, and the additional switchboards and apparatus have been installed. This equipment appreciably increases the efficiency of the operation of this system.

The new 22,000-volt line from the substation to the new Government grain elevator also supplies two other important loads, viz., the Canadian Northern Elevator Co., and the Davidson & Smith Elevator Co. These municipal loads show every indication of a considerable increase during the next year.

During the past year there has been a new 22,000-volt line built from the substation to supply the new waterworks station of the City of Port Arthur. As this station is entirely electrically operated and is situated at a distance from the city, it is evident that a considerable amount of power will be required when it is placed in operation.

With the growth of the system in and around Port Arthur, the power demand of the municipality, exclusive of the municipal plant at Current River, should be considerably increased in the near future.

The Capital Investment for the Port Arthur System to October 31st, 1914, is as follows:

Transmission Lines	$18,991 08
Transformer Station and Extensions	84,739 79
Total	$103,730 87

The Operating and Maintenance Expenses for the Fiscal Year ending October 31st, 1914, are as follows:

Operators' Salaries and Expenses, including Operating Supplies and proportion of Administration and General Office Expenses	$5,114 34
Interest at 4%	4,000 90
Sinking Fund at 1.8%	1,814 10
Cost of Power	37,778 90
Total	$48,708 24

A Financial Statement of Operation for the Fiscal Year ending October 31st, is as follows:

Revenue, including Charges for Administration, General Expense, Operation, Interest, Sinking Fund, and Depreciation	28,442 h.p.	$52,683 66
Expenses, including Cost of Power, Administration, General Expense, Operation, Interest, and Sinking Fund	28,442 h.p.	48,708 24
Surplus applicable to Depreciation Fund		$3,975 42

SEVERN SYSTEM

During the early part of the past year, arrangements were made by the Commission to purchase the property of the Simcoe Railway and Power Co., of Midland, so that the whole of the Severn System would be under the management and control of the Commission, thereby permitting of a more complete supervision and operation for the benefit of the municipalities supplied off this system.

The property of the Company, consisting of the dams and buildings and plant at the Big Chute on the Severn River, two pole lines between the Big Chute and Waubaushene 12 miles in length, the single pole line between Waubaushene and Midland, 15 miles in length, the Victoria Harbor tap line 1½ mile in length, and the substations and properties at Midland and Victoria Harbour were placed under the supervision of the Operating Department of the Commission on July 1st, 1914.

Up until the time of the transfer, the operation of the plant and lines had been handled jointly by the Power Company and the Commission. Since July 1st, the system has been operated jointly by the System Operator at Waubaushene in charge of the lines and substations, and the Power House Superintendent in charge of the operation of the plant and equipment at the Big Chute.

During the year, the lines of the Severn system have been equipped with tap and sectionalizing switches, so as to improve the operation of the line and also to cut down the maintenance cost and inconveniences to different sections in case of trouble on the system.

Severn System supplies power to the following municipalities in the County of Simcoe:

Midland.	Stayner.
Penetang.	Elmvale.
Barrie.	Coldwater and
Collingwood.	Creemore.

The municipality of Creemore was first supplied with power on the 21st of October, 1914, from the Stayner distribution station. This supply is three-phase, 4,000-volt power. The Creemore load has shown a favorable increase to the end of the fiscal year.

The Commission also has a contract with the town of Orillia to supply the municipality with power when it is required to help out their own plant, which is situated at the Ragged Rapids, some ten miles farther up the river than the Commission's plant at the Big Chute.

The maximum load of this system during the fiscal year, 1914, not counting the load of the municipality of Orillia, was 1,368 h.p.

The operation of the System along the lines mentioned above, has proved to be very satisfactory.

The operating Capital Investment for the Severn System to October 31, 1914, is as follows:

Power Development (Purchase of Simcoe Ry. Co.'s Plant and System)	$434,177 64
Transmission Lines	206,178 05
Distributing Stations	37,497 69
	$677,853 38

The following is a statement of the Operating and Maintenance Expenses of the Severn System for Fiscal year ending October 31, 1914, together with the Revenue derived from same:

RECEIPTS		
Midland—Power Account	$6,469 45	
Penetang—Power Account	7,534 82	
Collingwood—Power Account	10,280 14	
Barrie—Power Account	10,417 50	
Coldwater—Power Account	871 46	
Elmvale—Power Account	1,398 87	
Stayner—Power Account	2,672 63	
Orillia—Power Account	1,600 00	
Victoria Harbor and Midland—Miscellaneous Collections	915 23	
		$42,160 10
EXPENDITURES		
Operators and patrolmen's salaries and expenses, and proportion of administration and General Office Expenses	$9,490 83	
Interest at 4% on Capital Expenditures	9,659 11	
Interest at 4% on Capital Expenditures (Simcoe Railway and Power Company's Plant)	5,502 02	
Power purchased to June 30, 1914	15,191 92	
		39,843 88
Surplus applicable to Depreciation Reserve		$2,316 22

WASDELL'S FALLS SYSTEM

The Wasdell's Falls System, owned and operated by the Hydro-Electric Power Commission, was placed in operation on October 6th, 1914.

The power for this system is generated at Wasdell's Falls station at 2,300 volts, three-phase, 60 cycle; transformed to 23,000 volts and transmitted for distribution to the Beaverton and Cannington high-tension receiving station. The municipality of Beaverton is supplied from the Beaverton high-tension station. This station was also designed to serve the municipalities of Brechin and Gamebridge, which are situated north of Beaverton.

The municipalities of Cannington, Woodville and Sunderland and the adjacent farming districts are supplied from the Cannington high-tension station. The feeders leaving these high-tension receiving stations are three-phase, 4,000-volt feeders.

Beaverton and Cannington first received power on October 6th, Woodville on October 19th, and Sunderland on October 16th.

The operation of this system is carried out by having the men in charge of the Cannington and Beaverton districts co-operate with each other, and with the operators at the Power House.

The lines are inspected and maintained by the men in charge of the districts, and in case of trouble the power house operators co-operate with the district men in locating and clearing the lines of trouble.

The operation of the plant and system to date has been very satisfactory, and all indications point to the rapid growth of the power load in this section.

OTTAWA SYSTEM

The Ottawa System as operated by the Commission, at present supplies only the City of Ottawa. Three-phase power is supplied to the Ottawa Municipal Electric Department at 11,000 volts, 60 cycles through two three-conductor, lead sheathed, underground 11,000-foot cables from the generating station of the Ottawa and Hull Power Company located in Hull, Quebec. Owing to the fact that the power is transmitted underground and the distance comparatively short, there has been no interruptions in the service.

To date the load taken by the City of Ottawa has shown a favorable increase each month.

ST. LAWRENCE SYSTEM

Three municipalities, namely, Prescott, Winchester and Chesterville are at present supplied with power from the Eastern System of the Commission.

The power is purchased from the Rapids Power Company at their step-up station near the canal bank opposite their plant at Morrisburg and is delivered to the Commission at 26,400 volts, three-phase, 60-cycle. From this point it is transmitted 23 miles west to Prescott, Ontario, and 18 miles north to Winchester, Ontario. Power is supplied Prescott directly from the high-tension lines, and is transformed in the Prescott distribution station to 2,300 volts, three-phase, for local distribution. Power is also supplied to the Winchester distribution station from the high-tension line, and is transformed to 4,000 volts, three-phase, for the municipalities of Winchester and Chesterville, Chesterville being supplied over a seven mile line which runs in an easterly direction from Winchester distribution station.

The lines and stations on this system are operated and maintained efficiently by the co-operation of the superintendent of the local commission at Prescott, the superintendent of the northern section located at Winchester and the operators of the Rapids Power Company at Morrisburg generating station. This co-operative method of operating the system has proven very satisfactory to the municipalities to date.

Line sectionalizing switches have been manufactured and are to be installed in the near future on this system, so that the operation may be more efficient, the maintenance cost lower, and trouble when it occurs on the system easily located and quickly remedied with as little inconvenience as possible to the Municipalities supplied.

The municipality of Winchester has been receiving power since December 18th, and the municipality of Chesterville since the 7th of February, of this fiscal year. All municipalities supplied are showing favorable results to date.

The operating Capital Investment of the St. Lawrence System to October 31st, 1914, is as follows:

Transmission Lines	$105,790 72
Distributing Stations	9,726 58
	$115,517 30

The following is a statement of the Operating and Maintenance Expenses of the St. Lawrence System for the Fiscal Year ending October 31st, 1914, together with the Revenue derived from same.

EXPENDITURES

Cost of Power	$2,712 40	
Maintenance and Operation	824 21	
Interest	3,887 97	
		$7,424 58

RECEIPTS

Prescott	$4,788 23	
Winchester	1,704 27	
Chesterville	1,031 87	
		7,524 37
Surplus		$99 79

TOTAL CAPITAL COST TO OCTOBER 31st, 1914

Following is a statement of expenditures on Capital Account, including Niagara, Severn, Wasdell's, St. Lawrence, Eugenia, Port Arthur, and Renfrew Systems, also Municipal Construction (Chargeable), Stock on hand and Tools, together with expenditures on behalf of the Province.

Niagara System

Transmission Lines (Operating)		
Right-of-Way	$574,806 67	
Steel Tower Lines	2,095,050 23	
Telephone Lines	129,706 69	
Relay System Lines	54,537 32	
Conduit Systems (Ontario Power Co. to Niagara Station)	66,844 67	$2,920,945 58
Windsor Extension (Not Operating)		
Right-of-Way	$195,060 87	
Steel Tower and Telephone Lines	835,734 97	1,030,795 84
Duplication of Transmission Line, Niagara to Dundas (Not Operating)		
Right-of-Way	$47,264 25	
Steel Tower and Telephone Lines	258,305 92	305,570 17
Wood Pole Lines in Operation	$1,047,924 46	
Wood Pole Lines in course of Construction	191,572 20	1,239,496 66
Welland and St. Catharines District Lines		8,239 20
Rural Line Construction		159,382 23
Transformer Stations		
Stations in operation	$1,905,352 25	
Stations and Extensions in course of Construction	342,080 83	2,247,433 08
Distributing Stations in Operation	$86,674 65	
Distributing Stations in course of Construction	5,138 18	$91,812 83

Other Systems

Port Arthur Capital Cost		
Transmission Line	$18,991 08	
Transformer Station	84,739 79	103,730 87
Penetang Capital Cost		
Transmission Line	$9,149 19	
Transformer Station	7,091 82	16,241 01
St. Lawrence System		
Transmission Lines in Operation	$105,790 72	
Transmission Lines in course of Construction	8,274 86	
Distributing Stations in Operation	9,723 49	
Distributing Stations in course of Construction	38 51	
Preliminary Survey on Steel Tower Lines	373 98	124,201 56
Severn System		
Power Development (Purchase of Simcoe Railway & Power Co.'s Plant and System.)	$434,177 64	
Transmission Lines in Operation	197,028 86	
Transmission Lines in course of Construction	11,884 19	
Distributing Stations in Operation	30,405 87	
Distributing Stations in course of Construction	2,454 81	675,951 37

Wasdell's Falls System		
Power Development Plant and Transformer Station ..	$112,832 26	
Transmission Lines	94,051 24	
Distributing Stations	3,444 42	
		210,327 92
Eugenia Falls System		
Right-of-Way and Power Development Plant	$228,556 30	
Transmission Lines	10,102 71	
Transformer Stations	49 84	
Distributing Stations	30 68	
		238,739 53
Renfrew System		
Round Lake Storage Dam	$20,763 74	
		20,763 74

General

General Accounts (Chargeable)		
Construction Work Charged to Municipalities.....	$308,748 62	
Sales to Municipalities	25,003 12	
St. Lawrence District Operating Charges	829 70	
Ottawa Power and Operating Charges	5,820 05	
London and Port Stanley Railway Construction	7,725 49	
Cable Reels (returnable)	3,146 07	
		351,273 05
General Accounts (Capitalized)		
Office Furniture and Equipment	$11,576 41	
Unexpired Insurance, Employees	2,473 18	
Unexpired Insurance, Office Equipment	88 70	
Stationery on Hand	1,327 99	
Cameras	333 87	
Travellers' Certificates	359 25	
		16,159 40
Garage Account		
Automobiles (less depreciation)	$21,516 06	
Stock on Hand (Covers, Tubes, etc.) and Repairs.....	11,182 11	
Unexpired Automobile Insurance	1,724 25	
		34,422 42
Machine Shop Account		
Labour and Material on Unfinished Products Chargeable to Construction on Completion	$1,178 41	
		1,178 41
Storehouse, etc.		
Toronto Storehouse, Testing Laboratory, Garage and Machine Shop	$74,633 83	
Dundas Storehouse	1,586 04	
		76,219 87
Office Building	$69,493 08	
		69,493 08
Stock and Tools		
Line and Station Construction Stock on Hand	$152,626 01	
Line Maintenance Stock	17,631 43	
Station Maintenance Stock	11,529 15	
		181,786 59
Line and Station Construction Tools (less depreciation)	$2,946 31	
Line and Station Maintenance Tools (less depreciation)	1,802 20	
Camp Equipment (less depreciation)	1,135 91	
		5,884 42
Total Expenditure		$10,130,048 83

PROVINCIAL EXPENDITURES

Provincial Account for Fiscal Year, 1913-4

Engineering assistance to the non-operating Municipalities; the gathering of data throughout the Province for statistical purposes; reports on Municipal operation, and also the making of estimates for the delivery of power for Municipalities arranging to take current	$28,898 41
Municipal estimates for power supply and rate investigation	4,851 29
Hydrographic surveys, storage surveys for the Province, reports and investigations of power sites and reports on stream flow	25,921 13
Reports on overhead and underground construction for Municipalities, rural districts, and auxiliary plant investigations	6,025 58
Engineering investigations for Municipalities, testing, and reports on proposed Municipal Electric Railways	32,570 66
Rules and Regulations, inspection of installation of systems for the utilization of electric energy	6,416 87
Engineering in connection with collection of data on Municipal Illumination, and standardization of meters, motors and transformers	3,510 16
Demonstration at Rural and Urban Fairs	6,830 72
Niagara Surveys	6,354 06
Grand River Storage Surveys	6,183 24
Grand River Hydrographic Surveys	6,623 78
Lake of the Woods—District Surveys, Hydrographic and Stream Flow	4,394 07
General Office Expenses, including Secretary's Accounting, Stenographical and General Office Staffs, also stationery and rent	27,422 86
Administration	16,440 47
Total	$182,443 30

BALANCE SHEET

Assets

Sundry Expenditures, per list	$10,130,048 83
Warrantable advances	23,116 42
Power Bills unpaid, October 31st, 1914	168,044 37
Cash on hand	52,684 13
	$10,373,893 75

Liabilities

Provincial Treasurer	$10,010,202 92
Niagara System, Surplus applicable to Depreciation Reserve Account	333,625 60
Severn System, Surplus applicable to Depreciation Reserve Account	2,456 02
Port Arthur System, Surplus applicable to Depreciation Reserve Account	17,727 41
Welland System, Surplus applicable to Depreciation Reserve Account	700 55
Interest Account	8,970 12
Storehouse and Laboratory Operation Surplus	211 13
	$10,373,893 75

EXPENDITURES DURING FISCAL YEAR ENDING OCTOBER, 1914

Niagara System

Right-of-Way	$10,461 47	
Steel Tower Transmission Lines	311,264 10	
Telephone Lines	25 00	
Conduit System, Ontario Power Co. to Niagara Station	18,919 75	
		$340,670 32

WINDSOR EXTENSION

Right-of-Way	$153,482 83	
Steel Tower and Telephone Lines	724,043 01	
		877,525 84

NIAGARA-DUNDAS DUPLICATION

Right-of-Way	$ 47,264 25	
Steel Tower and Telephone Lines	258,305 92	
		305,570 17
Wood Pole Lines	$471,582 18	
Rural Line Construction	123,499 52	
Welland and St. Catharines District Lines	172 87	
		595,254 57
Transformer Stations and Extensions	$675,649 04	
Distributing Stations	18,146 67	
		693,795 71
		2,812,816 61

Severn System

Power Development	$434,177 64	
Transmission Lines	14,739 96	
Distributing Stations	7,906,53	
		456,824 13

Wasdell's Falls System

Power Development Plant	$ 98,418 22	
Transmission Lines	93,734 05	
Distributing Stations	3,444 42	
		195,596 69

St. Lawrence System

Transmission Lines	$ 24,403 39	
Distributing Stations	6,850 91	
		31,254 30

Eugenia Falls System

Power Development Plant and Right-of-Way	$228,556 30	
Transmission Lines	10,102 71	
Transformer Stations	49 84	
Distributing Stations	30 68	
		238,739 53
Port Arthur Capital Cost	$ 13,305 61	
Round Lake Storage Dam	3,001 86	
Storehouse and Laboratory	24,316 26	
Office Building	69,493 08	
		110,116 81

General Accounts

Municipal Construction (Chargeable)	$185,863 20	
Sales to Muicipalities	25,003 12	
Railway Construction	7,725 49	
Cable Reels	3,146 07	
Automobiles, Office Equipment, etc.	28,597 67	
Construction and Maintenance Stock	109,541 05	
Tools and Camp Equipment	3,168 56	
		363,045 16
Provincial Accounts		182,443 30
		$4,390,836 53

SECTION IV

MUNICIPAL WORK

MUNICIPAL ADVICES

Preliminary Work

Investigations were made of the existing power conditions in municipalities, and their requirements, for use in preparing estimates of the cost of supplying power to them. Instructions were given as to the procedure to be followed to obtain electric power through the Commission. Wherever it was decided to submit the enabling by-law or a debenture by-law to cover the cost of a municipal distributing system, assistance was rendered, in preparing estimates of cost, and in placing the Hydro-Electric proposition before the ratepayers.

In addition to giving preliminary instructions to township municipalities as to the circulation of petitions, a number of them were assisted in obtaining applications for rural power service, at rates that had been recommended, based on estimates of the cost of serving petitioners.

During the year, work of this nature was taken care of by the Department in the following municipalities:

Ailsa Craig, Albion Township, Alexandria, Alliston, Amherstburg, Ancaster, Ancaster Township, Arkona, Ayr.

Barton Township, Beamsville, Beeton, Belwood, Beverly Township, Blenheim, Blenheim Township, Bolton, Bracebridge, Bradford, Brantford Township, Bruce Mines, Burford Township, Burlington.

Caledon Township, Carleton Place, Chapleau, Chatsworth, Chesley, Chinguacousy Township, Chippewa, Claremont, Clinton Township, Copetown, Conestogo, Creemore.

Delaware, Dorchester North Township, Dresden, Dumfries North Township, Durham, Durham Township, Dutton.

Embro, Embrun, Esquesing Township, Essex, Etobicoke Township.

Finch, Flamboro East Township, Flamboro West Township, Flesherton, Flos Township, Ford City.

Granton.

Hanover, Harriston, Harrow, Havelock, Highgate, Holland Landing, Huntsville.

Iroquois.

Kemptville, Kenmore, King Township, Kingsville.

Lambeth, Lakefield, Leamington, Louth Township, Lucan, Lynden.

Mountain Township, Markdale, Matilda Township, Morrison Township, Mount Brydges, Mount Forest.

Niagara Falls, Niagara Township, Nichol Township, Nissouri West Township, Norwich North Township, Norwood.

Oakland Township, Orangeville, Oxford East Township, Oxford West Township.

Peel County, Plummer additional Township, Port Colborne, Port McNicoll, Priceville, Prince Township, Puslinch Township.

Ridgetown, Rodney, Russell.

Sandwich, Shallow Lake, Shelburne, Simcoe, Smith's Falls, Southwold Township, St. Clements, St. Jacobs, Strathroy, Streetsville.

Tarentorus Township, Tavistock, Tay Township, Thessalon, Thorold Township, Tilbury East Township, Tiny Township, Toronto Gore Township, Tottenham, Trafalgar Township.

Vankleek Hill, Vaughan Township.

Walkerton, Wallaceburg, Waterford, Waterloo Township, Waubaushene, Wellesley, West Lorne, Williamsburg, Wilmot Township, Winchester Springs, Woodbridge.

Zorra Township.

Estimates have been submitted to a number of the foregoing municipalities, some of which have taken definite steps towards entering into agreements with the Commission for a supply. Further notes on such municipalities are given in the reports following.

Acton

The Department has continued to act in a consulting and advisory capacity for this Municipality, and has in addition to supervising the general management of the utility, rendered engineering assistance in laying out extensions to the system and in the electrical installations of new power consumers.

Operating conditions in Acton have been very satisfactory, both financially and as to the distribution of their load. The amount of power taken from the Commission has increased from 56 h.p. taken during October, 1913, to 141 h.p.

Algoma District

After investigating the power requirements of Thessalon, Bruce Mines and the Townships of Tarentorus and Plummer additional, it was not deemed feasible to undertake the development and transmission of Hydro-Electric power at this time.

Ancaster Village

By a resolution of the Ancaster Police Village Board, the Commission was requested to enter into negotiations for the Town of Dundas to give the village power and lighting service.

This arrangement was made during the latter end of December and orders were immediately placed for materials. Construction work was carried on by the Dundas Commission under the supervision of this Department, the installation being completed and service commenced early in May, using rates as recommended by the Commission.

(See report on Dundas.)

Ayr

The following estimated costs of power to Ayr, together with other municipalities in this district, were submitted:

Ayr, 100 h.p.	$37.40 per h.p. per year.
Drumbo, 25 h.p.	$40.73 per h.p. per year.
Plattsville, 100 h.p.	$49.27 per h.p. per year.
Princeton, 25 h.p.	$65.95 per h.p. per year.
Wolverton, 40 h.p.	$43.17 per h.p. per year.

A form of agreement covering the delivery of 100 h.p. to Ayr at the estimated cost noted above, was drawn up and forwarded to the village officials. This was signed towards the latter part of April.

Previously Ayr had been operating a municipally owned steam driven electric generating and distributing system. As soon as its agreement had been signed, plans were prepared for remodelling the system, and orders placed for the necessary materials. The reconstruction work in Ayr has been carried on under the supervision of this of this Department.

Recommendations have been made as to the schedule of rates to be used in Ayr in billing power and lighting consumers.

Baden

The operation of the Baden distribution system has continued very satisfactory during the year, and there are prospects of further increases in business in the near future. The load has increased during the year from 153 h.p. taken during October, 1913, to 187.5 h.p. for the last current month. Assistance has been rendered the local officials in connection with the management of their utility. and with laying out extensions to serve new power consumers.

Street lights have been added to the extension serving St. Agatha and Petersburg, which is managed and operated by Baden. A number of rural services have also been connected to this extension using rates as recommended by the Commission.

Barrie

There has been a steady increase in the load taken by the municipality, having grown from 288 h.p. for October, 1913, to 415 h.p. for the last current month.

In the preceding report, reference was made to a proposal to instal electrically driven waterworks pumps. A study was made of the various tenders received, and recommendations were submitted together with plans of a proposed layout.

Beachville

Conditions in Beachville have continued very favorable, the utility being on a firm basis financially. There has been no marked increase in the load of the Municipality, but the power taken has been so distributed among the consumers as to give a very good load factor, resulting in a large increase in earnings and warranting a substantial reduction in rates.

Beaverton

The reconstruction of the Beaverton distribution and street lighting systems was carried on under the supervision of this Department, and everything was complete and in operating condition prior to the delivery of power from the Wasdell's Falls development. Power was first delivered to Beaverton on October 6th, the occasion being marked by a formal opening and public demonstration.

A schedule of rates was recommended for use in billing power and lighting consumers, and the local officials were instructed in their application. Assistance is being given in an endeavor to work up a substantial power load, both in Beaverton and in the other municipalities in that district who are now receiving their power from the Commission.

Belleville

In compliance with a request from the City of Belleville, an investigation was made of the conditions in the water works pumping plant. A complete report was prepared on its operation and recommendations were made as to the handling of contemplated additional installations. Suggestions were also given respecting the operation of the present equipment. This report was submitted to the Municipality.

The franchise for street lighting being about to expire, the Commission was requested to advise the Corporation regarding the granting of a new franchise to the local distributing company. Assistance was also required in laying out proposed changes in the street lighting system and in installing an underground system in down town districts. The proposed new agreement was submitted to the Commission for comment. This was re-drafted to embody the conditions recommended, and submitted to the municipality.

The Corporation adopted all of the Commission's recommendations.

Belwood

The following estimated costs of power were submitted to the Village of Belwood:

50 h.p. ..... \$50.00 per h.p. per year.
75 h.p. ..... \$45.00 per h.p. per year.

Schedule of rates based on the above were also prepared and submitted.

Berlin

The operation of the Berlin distribution system has been very satisfactory, the growth of revenues over expenses being such as to warrant a substantial reduction in rates. The load taken from the Commission has shown a substantial increase, the maximum of 1,468 h.p. taken during 1913 having grown to 1,843 h.p. for the present year.

In addition to advising the municipal officials on minor details of management and operation, general plans for increasing the capacity of the municipal substation were submitted to the local officials, who approved of the same and instructed the Commission to prepare detailed drawings covering the work.

Bolton

The village of Bolton was advised that 250 h.p. could be delivered at the estimated cost of \$43.61 per h.p. per year. This rate was for power at a voltage suitable for distribution within the village limits. It was also advised that \$10,300 would be required to acquire the local distribution system, and to remodel it.

The enabling by-law and a by-law to authorize an issue of debentures for \$9,500 were carried by the ratepayers on August 3rl.

Brampton

Assistance has been given Brampton in simplifying the method of handling a number of details in connection with the management of the utility.

There has been no marked increase in the load during the year, but that taken has been so distributed among the various users as to give a greatly increased use without increasing the demand. This has resulted in a substantial increase in revenues without increasing expenses materially.

Applications were received for rural power in Chinguacousy Township near the limits of the Town of Brampton. It is proposed to have the town extend its system to take care of these applicants and negotiations to this end are now in hand.

Brantford

Portions of Brantford's Municipal distributing system were completed on January 14th and power first supplied on that date. Since then this work has been continued together with the connecting of services to consumers. The local department has been very successful in working up a power and lighting business. the loal taken from the Commission having so far grown to 972 h.p.

Assistance has been given the local department in the various details in connection with the management and operation of the utility, and also in obtaining power consumers.

The City of Brantford having taken over the lines and equipment of the Grand Valley Railway, and the contract for its power being about to expire, negotiations were entered into to obtain this load for the local Hydro-Electric department. A study was made of the load conditions of the railway, and of the cost of giving the required service. It was apparent that it would be advantageous to shut down a steam plant supplying power to this road near Paris, and to purchase power from Paris at this point. An agreement has been drawn up and submitted, covering the delivery of this power. There is every possibility of this railway also taking power from Brantford on the expiration of the present agreement.

Arrangements have been made for Brantford to extend its distribution system to serve certain districts in Brantford Township, from which petitions were received. These extensions will be built as soon as the system within the City has been completed.

Brantford Township

In addition to those portions of this township that will be served by the City of Brantford, contracts have been obtained for rural service close to the Commission's Brant transformer station. An extension has been built in this district, and service is now being given.

Brechin

Plans covering the construction of the Brechin Municipal System were prepared and instructions issued covering its installation.

Breslau

In addition to the contract that has been obtained to supply a Brick Company at Breslau, another was signed for the supply of power to 60 h.p. of motors in a furniture factory. The demand on the Breslau station has reached 96 h.p. The proposition of giving domestic and street lighting service is now being taken up.

Brockville

Assistance was rendered the Light and Power Department on a number of questions in connection with the utility; some of the more important of these being outlined below.

The Brockville Hospital for Insane was considering making a complete electrical installation, to be supplied with power from the town. Advice was given to the town as to the handling of this business and providing service.

A report was requested on the advisability of reducing the rates for street lighting. A study was made of the installation and estimates were prepared of the cost of giving the service. As a result of this investigation the Municipality was advised that the desired reduction could be safely made.

In view of the construction of a transmission line to Brockville and erection of a substation in the near future, a representative visited the town to report on a possible station site and also on the equipment that would be required by the town. The load conditions of the present plant were investigated and inquiries made regarding the possibility of increase. The routes likely to be followed by the Commission in bringing lines into the corporation were also studied. With these details as well as the location of the load to be carried, a report was prepared and submitted.

Brockville Hospital for Insane

The Department of the Provincial Secretary requested an estimate of the cost of installing a distribution system and electric equipment in the Brockville Hospital for Insane. A representative visited the institution and made a study of its requirements. A detailed report was then prepared and submitted.

Burford Township

Instructions have been issued to the Construction Department covering the construction of lines for the rural distribution of power in this township. After these lines are completed they will be handed over to the village of Norwich for operation.

(See report on Norwich.)

Burlington

Estimated costs, as follows, were forwarded to the Municipality, the rates being for 2,200 volt power:

150 h.p.	$25.51 per h.p. per year.
300 h.p.	$21.66 per h.p. per year.
600 h.p.	$20.00 per h.p. per year.
800 h.p.	$19.08 per h.p. per year.

Caledon Township

A request was received for prices on 150 and 200 h.p. to be delivered to a manufacturer at Credit Forks in this township. Estimates were prepared and the following rates submitted for 2,200 volt power:

150 h.p.	$47.04 per h.p. per year.
200 h.p.	$41.75 per h.p. per year.

Caledonia

Although Caledonia has a supply of cheap natural gas, yet domestic and commercial lighting consumers have been taken on at a very satisfactory rate. This is reflected in the growth of the load taken from the Commission, which has increased from 27 h.p. for October, 1913, to 33.5 h.p. for the last current month. Financial reports indicate that the utility is on a sound financial basis.

Campbellford

The Town of Campbellford having been requested to give a proposition for supplying 300 h.p. to a paper mill located near its limits, requested the Commission's advice in the matter. A report was made on the town's ability to supply the power required, and also as to the extensions necessary. Estimates were prepared covering this construction, which were submitted.

Having explained the various details covered by the estimates, the Commission was asked to assist the Municipality in obtaining a contract for power with the paper company, and also to draw up specifications covering the equipment to be installed. Negotiations in regard to this agreement are still pending. No action has been taken in preparing the specifications, since it has been deemed advisable to first decide the source of supply for Havelock.

Recommendations have been made to the Municipality in regard to the management and operation of the system within its limits.

Carleton Place

The following estimated costs of different amounts of power transmitted to Carleton Place from Ottawa, together with power to Smith's Falls, were prepared and submitted:

With Carleton Place taking 100 h.p. and Smith's Falls 500 h.p.—$48.84 per h.p. per year.

With Carleton Place taking 200 h.p and Smith's Falls 1,000 h.p.—$32.18 per h.p. per year.

With Carleton Place taking 200 h.p. and Smith's Falls 2,000 h.p.—$27.39 per h.p. per year.

These rates were for power delivered to Carleton Place at a voltage suitable for distribution within its limits.

Chapleau

The franchise for the operation of the electric light plant in Chapleau being about to expire, the Commission was asked to act in an advisory capacity in drawing up a new agreement. A report was prepared, covering the condition and operation of the system and a proposed agreement was submitted to the Commission for comment. After going into all of the details, a new form was prepared and forwarded to the Municipality.

Chatham

Negotiations for the purchase of the plant and equipment of the local distribution company in Chatham, were carried on unsuccessfully until early in August. Since it was apparent that a satisfactory arrangement could not be reached the City decided to construct a municipal distribution system. A by-law authorizing an issue of $90,000.00 in debentures for this purpose was recommended. This was carried on October 12th by a large majority. A local superintendent and construction superintendent have been appointed, and plans covering construction are now in the course of preparation.

Chatsworth

Chatsworth was advised that 75 h.p. could be delivered to the village at the rate of $30.71 per h.p. per year. This estimated cost was for power delivered at a voltage suitable for local distribution based on the assumption of Owen Sound taking 1,500 h.p. and Markdale 150 h.p.

Later, after an investigation had been made of the power requirements of other municipalities in this district, the estimated cost of $28.85 per h.p. per year was submitted.

The enabling by-law will be submitted at the coming municipal elections.

Chesley

The enabling by-law was carried at the January elections by a large majority. Although Chesley is supplied with light, power and street lighting by a private company, it was proposed that the town install a street lighting system to be supplied with power generated by steam until such time as power would be available from the Commission. Tenders were obtained covering the materials and apparatus that would be required which were submitted

After investigating the power situation in Municipalities in Grey and Bruce Counties, they were advised that 400 h.p. could be delivered at the rate of $40.57 per h.p. per year.

Chesterville

Construction work was completed in this municipality and power supplied on February 7th, a temporary service being given by transmitting power at 2,200 volts from Morrisburg. This arrangement continued until the completion of the Winchester distributing station, since which time service has been given under permanent conditions.

A representative has visited Chesterville at regular intervals to assist the local officials and advised them on various details of management.

The Village has been granted permission to supply the rural district adjacent to its limits.

Chippewa

The following rates, covering different amounts of power delivered to the municipality at 26,000 volts were submitted:

2,000 h.p.	$12.50 per h.p. per year.
3,000 h.p.	$12.00 per h.p. per year.
6,000 h.p.	$11.50 per h.p per year.

Clinton

The original plans for remodelling the distribution system were drawn up in accordance with the desire of the municipality to operate its old system by driving a generator with a synchronous motor operating on Hydro-Electric power. It was later suggested that the cost of operation would be less if the distribution system were changed over to transmit the power as delivered by the Commission. A report was prepared, comparing the costs of the two proposed systems, which showed that the latter would be the more economical. This scheme was approved by the municipality and instructions were issued to have the construction done accordingly.

The work on the distribution system was completed and power was delivered on February 15th.

A schedule of rates for use in billing power and lighting consumers, was submitted to Clinton.

Having been requested to prepare an estimate of the cost of giving lighting service at Holmesville, a small village in Goderich Township near Clinton, a

representative visited that district and reported on the local requirements. An estimate was prepared of the cost of giving the service by extending the Clinton system and a schedule of rates prepared and submitted.

The load taken by Clinton has shown a steady increase, that taken during the last current month being 95 h.p.

Coldwater

Reports of operation show Coldwater to be on a firm financial basis, although the growth of the load has not been as great as anticipated. The present load is 44 h.p.

Collingwood

Collingwood has made substantial increases to the number of power and lighting consumers during the year. The load taken during the last month was 370 h.p., the maximum for 1913 being 288 h.p. There are prospects of further growth in the load during the coming year.

Operating reports show the department to be on a firm financial basis. A representative has kept in touch with the details of the management of the utility, and has rendered engineering assistance in connection with the distribution system and installation of the power consumers' equipment.

Conestogo

See report on St. Jacobs.

Creemore

A rate of $54.13 per h.p. per year was submitted to Creemore, this being for 75 h.p. delivered at a voltage suitable for distribution within the village. The municipality was also advised that $7,500.00 would be required to purchase the system then operating, and to remodel and extend it to meet present needs.

The enabling by-law and a debenture by-law were carried on January 16th.

A form of agreement covering the delivery of 75 h.p. to Creemore was prepared and submitted to the village council and signed early in February.

Instructions were issued covering the work to be done in the village, the Commission having been requested to take charge of the re-construction.

Power was delivered to Creemore on October 21st, everything being in readiness for its reception at that time. A schedule of rates for use in billing power and lighting consumers, was drawn up and submitted. Assistance is being given the local officials in an endeavor to work up a power load.

Dorchester, North Township

A contract has been obtained from a manufacturer in this township, located near the line being built to serve the township Village of Dorchester, and preparations are being made to give service at this point. Contracts are also being obtained for rural service along this line as well as along the line serving Thamesford.

Dresden

The Town of Dresden was advised that the estimated cost of power was $43.00 per h.p. per year for 200 h.p., and that $9,500.00 would be required to cover the cost of remodelling the local distributing system. A by-law authorizing an issue of this amount in debentures was carried on July 20th by a large majority.

A contract covering the delivery of power to Dresden was signed early in September. Instructions have been issued for the reconstruction of the distribution and street lighting systems. This work will proceed as soon as the materials have arrived.

A schedule of rates for use in the municipality for billing power and lighting consumers was drawn up and submitted.

Drumbo

The Police Village of Drumbo was advised that $4,500.00 would be required to instal a complete distributing system within its limits, and on February 9th a by-law carried by a large majority authorizing an issue of debentures for that amount.

A form of agreement covering the delivery of 25 h.p. at an estimated cost of $40.75 was prepared and submitted. This was signed about the middle of April.

Drumbo's distributing and street lighting system has been completed and is ready to be put into service upon the completion of the Commission's transmission line and transformer station.

Dundas

The new street lighting system in Dundas was installed under the supervision of the Commission, a portion of it being ready for service on December 1st, the date of expiration of the old street lighting franchise.

As the Police Village of Ancaster desired electric service, it was proposed that Dundas take care of the business. After submitting estimates of costs, it was arranged that Dundas handle the extension, using a schedule of rates as recommended. This extension has been built and is now operating. (See report on Ancaster Village.)

Permission was given Dundas to serve certain lighting consumers in Ancaster Township along the lines to Ancaster Village and West Hamilton, at rates approved by the Commission. A similar arrangement was made to give service to the township Villages of Bullock's Corners and Greensville.

Dundas municipal load has grown from 268 h.p. taken during 1913 to 312.5 h.p. for the last current month. This is in addition to the loads taken by private corporations at Dundas directly from the Commission. On account of this, and also of possible further increase in the near future, it was deemed advisable to move the Dundas stepdown transformers from the Commission's inter-switching station near the corporation to a substation to be located within the limits and centrally to the power load. Steps are being taken to have this work done immediately under the supervision of the Commission.

A number of minor details in connection with the management and operation of the Dundas utility were referred to the Department for advice. The operation in Dundas has been very satisfactory, reports showing the utility to be in a healthy financial condition.

Durham

In accordance with estimates of the cost of power to municipalities from the Eugenia Falls development, Durham was advised that 2,200 volt power could be delivered at the following rates:

125 h.p.	$33.97 per h.p. per year.
500 h.p.	$24.99 per h.p. per year.

Elmira

A representative has visited Elmira at regular intervals to advise the local officials on various questions relative to the management of this utility. So far motors aggregating 86 h.p. have been connected to the lines, while the total load has reached 107 h.p. Operating conditions in Elmira are quite satisfactory, and the utility is on a firm financial basis.

Elmvale

The operation in Elmvale has been satisfactory during the year, and the utility is on a firm financial basis. A number of new power consumers have been obtained and are being supplied. The present load is 42.5 h.p.

The village has requested permission to serve the surrounding country, which includes a number of unincorporated villages. This proposition is being investigated.

Elora

The enabling by-law and a money by-law to authorize an issue of $10,000.00 of debentures were carried by large majorities early in November. A form of agreement covering the delivery of 200 h.p., at an estimated cost of $33.97 per h.p. per year, was drawn up and submitted to the municipality. This was signed on November 14th.

Instructions were issued for the construction of a transformer station for the village and remodelling of its distribution and street lighting systems.

The village requested permission to give rural service to prospective consumers in the township of Nichol, close to the transmission line being built to Elora; this was granted, the rates to be used being in accordance with the Commission's recommendations. A form of agreement covering this extension was drawn up and signed.

A schedule of rates for use in billing power and lighting consumers and also for street lighting was drawn up and submitted. Construction was completed and power was delivered on October 22nd.

Assistance is being given the local officials in working up a power load, and in regard to various details of management of the utility.

Embro

The village of Embro was advised that power could be delivered at a voltage suitable for distribution at the following rates:—

50 h.p.	$52.80 per h.p. per year.
100 h.p.	$39.85 per h.p. per year.

and that the estimated cost of remodelling the distribution and street lighting systems was $6,141.00.

A by-law to authorize an issue of $6,000.00 of debentures was carried on April 24th by a large majority. A contract covering the delivery of 100 h.p. at an estimated cost of $39.85 per h.p. per year was prepared and submitted. This was signed early in May.

The reconstruction of the Embro system was begun early in August, work being carried on under the supervision of the Commission. plans covering the work to be done having been previously drawn up and materials delivered. Con-

struction within the village has been completed and is in readiness for use upon the completion of the Commission's transmission line and distributing station. A schedule of rates for use in Embro for billing power and lighting consumers has been drawn up and submitted to the municipality.

Embrun

An estimated cost of $34.46 per h.p. per year was submitted to the Police Village of Embrun, covering the delivery of 150 h.p.

Esquesing Township

Previous to the use of Hydro-Electric power by the Village of Georgetown, service had been given in a section of this township by the company then operating. It was recommended that Georgetown continue to handle this business, and the necessary extensions have been built and put into operation.

(See report on Georgetown.)

Etobicoke Township

It was recommended that the following extensions be built in this township:—

An extension to serve additional consumers in the Humber Bay district.

An extension along the Lake Shore road, west from New Toronto.

An extension north from Weston, to serve the Scarlett Road district.

These extensions have all been built and are in operation, it having been arranged that each district be handled by the municipality from which the extension was made.

(See reports on Weston, New Toronto and Mimico.)

Fergus

The village of Fergus carried both the enabling by-law and a by-law to authorize an issue of $16,000 in debentures. The agreement covering the delivery of a 200 h.p. at an estimated cost of $33.97 per h.p. per year which had previously been submitted was signed about the middle of November.

An agreement for the purchase of the present system in Fergus was also drawn up and submitted.

The Council forwarded a resolution to the Commission requesting it to act as consulting engineer and to supervise the reconstruction. Acting in this capacity, instructions were issued covering the work to be done.

A schedule of rates for use in billing lighting and power consumers was submitted to the municipality. A representative has visited the municipality at regular intervals to assist the local officials in increasing the power load and in arranging details of management.

The system was completed and supplied with power on October 23rd. the initial load being 80.5 h.p.

The municipality requested permission to serve rural consumers located along the transmission line supplying power to the village, which was granted.

Finch

Having revised the estimates of the cost of delivering power to Finch, the municipality was advised that 75 h.p. could be delivered at the rate of $47.19 per h.p. per year, at a voltage suitable for distributing within the village.

Flesherton

According to the estimates of the cost of power to municipalities from Eugenia Falls, Flesherton was advised that 50 h.p. could be supplied at a rate of $25.28 per h.p. per year, for power suitable for distribution within the village limits. The Municipality was also advised to raise $5,500.00 for Hydro-Electric purposes. The enabling by-law and a debenture by-law for this amount were both carried by unanimous votes on October 29th.

Floradale

See report on St. Jacobs.

Ford City

A resolution by the village council of Ford City requested that the Walkerville system be extended to supply the village with power and lighting service. It was recommended that this be done and at the Walkerville rates. The extension is at present under construction.

Fort William

The following estimated costs were forwarded Fort William early in November for power delivered at 2,200 volts:—

1,000 h.p.	$24.00 per h.p. per year.
2,000 h.p.	$20.00 per h.p. per year.
3,000 h.p.	$19.50 per h.p. per year.
4,000 h.p.	$18.50 per h.p. per year.
5,000 h.p.	$18.00 per h.p. per year.

At the request of the municipality to prepare plans for a transformer station, instructions were issued outlining the requirements of the city as a guide in their preparation. Upon completion of preliminary drawings, a representative visited Fort William and obtained the information required to complete the plans and specifications.

Georgetown

The Village of Georgetown requested permission to extend its system into Esquesing township to give power and lighting service in the Village of Glen Williams, as had been done previously. It was recommended that the extension be built, a schedule of rates being also recommended for use in this secton. This extension has been built and placed in operation.

An application having been received from a manufacturer for a supply of power at Cheltenham in Esquesing township an agreement was drawn up covering the supply of 200 h.p.: the contract was signed; an extension has been built to Cheltenham, and power is now being supplied. The management of this extension has been turned over to Georgetown.

The operation of the Georgetown system has been very satisfactory during the year, financial reports showing substantial surpluses in all departments. A number of new consumers, both lighting and power, have been added to the system, and the load has grown from 83 h.p. for October, 1913, to 119.5 h.p. for the last current month.

Goderich

The Goderich distributing system was connected to the Commission's lines on December 28th. Since then assistance has been rendered the local officials in connection with the management and operation of the system, and in soliciting power consumers. After operating for a portion of a year it is found that the utility is on a firm financial basis. The load has grown steadily, 214.5 h.p. being taken during last current month.

Acting in an advisory capacity in regard to the installation of waterworks pumps, tenders were obtained covering the equipment required and a report was submitted to the municipality, which approved the Commission's recommendations and issued instructions providing for the preparation of plans for the installation.

Requests were received for electric light and power service in Colborne township close to the Goderich limits. After investigating conditions, it was recommended that the service be given. This extension has been turned over to Goderich for management and operation.

Grantham Township

During November a representative made a canvass of this township to secure applications for rural electric service. It was recommended that lines be built in a portion of the township north and east of St. Catharines to serve fifty-five consumers. At a meeting of the applicants the recommendations of the Commission were approved, and instructions were given the Township Council to pass the necessary by-law to enter into an agreement for the required power. The township passed this by-law on March 14th.

An agreement covering the delivery of power to Grantham Township was prepared and submitted. This was signed on May 12th. Instructions were then given to the construction department covering the work to be done.

Grimsby

A proposed franchise and an agreement for the supply of power to the Village of Grimsby were submitted to the Commission for comment. The various details were gone into carefully, and a report was forwarded to the municipality.

Guelph

The municipality requested permission to extend its distribution system to serve rural consumers close to the city limits. After investigating the proposition the Commission authorized Guelph to proceed with the proposed extension, giving a schedule of rates to be used in billing for the service.

A request was received from Guelph for a report on the advisability of installing electrically operated waterworks pumps; after making a study of the conditions and requirements a complete report was forwarded to the municipality.

The load taken by the City of Guelph has continued to increase satisfactorily, having now reached 2,024 h.p.; the maximum load for 1913 being 1,561 h.p. The financial operation shows considerable surpluses in all departments, and a substantial reduction in rates will probably be made.

Hagersville

The results obtained in Hagersville have been satisfactory, operating reports showing the utility to be in firm financial condition. The present load is 127.5 h.p. Although Hagersville has a supply of cheap natural gas, consumers of elec-

ricity, both for lighting and for power purposes, have been coming on rapidly. There is only one power user in the village who has not changed over, but it is believed that he also will become a consumer of electricity at an early date.

A request was received from a manufacturer in Cayuga township, near Hagersville, for a quotation on 100 h.p. Estimates were prepared of the cost of giving the service, and a proposition covering the supply was submitted.

Hamilton

The power load of the City of Hamilton has continued to increase steadily, the demand for the last current month being 6,340 h.p. (for October, 1913, it was 4,706 h.p.). Power and lighting consumers have continued to come on rapidly, service being given as soon as the municipality's lines were extended far enough to supply them.

The municipal street lighting system was put into operation on July 1st.

Reports on the operation in Hamilton show a surplus of revenue over expenses although part of the system is still under construction.

Requests for lighting and street lighting service were received from sections of Barton Township, close to Hamilton city limits. After investigating the probable requirements of these districts, it was reported that the business could be handled advantageously by the Hamilton Hydro-Electric Department, and arrangements have been made whereby Hamilton will take care of this business.

Hanover

The Town of Hanover carried the enabling by-law on January 5th.

It was estimated that 400 h.p. could be supplied to Hanover along with the other municipalities in the Eugenia Falls district at the rate of $33.90 per h.p. per year, for 2,200 volt power. The result of this estimate was forwarded to the municipality.

Harriston

In the estimates covering the cost of distributing power from Eugenia Falls, it was found that 400 h.p. could be delivered to Harriston at the rate of $45.15 per h.p. per year for power at 2,200 volts. This rate was submitted to the municipality.

Hespeler

A number of difficulties which had detrimentally affected operation in Hespeler have been cleared up during the year, resulting in the utility being placed on a firm financial basis, and operating reports now show a surplus of revenues over expenses.

Plans and estimates have been prepared covering suggested changes in the distribution system, which would simplify operation and effect economics, and recommendations have been made accordingly.

A request was received regarding supplying power to a manufacturing plant in Waterloo Township, near Hespeler. Estimates were prepared of the cost of giving the required service, and from this a schedule of rates was drawn up. A letter was submitted to the applicant outlining the conditions under which service could be given.

Huntsville

The results of a number of estimates, covering the delivery of different amounts of power to Huntsville from High Falls on the Muskoka River, and also from South Falls, under different conditions of contract, were submitted to the municipality early in July.

While in Huntsville for the purpose of discussing these, together with the proposition that would be submitted by the Commission, a representative made a report on the power situation, giving details of the equipment and operation of the local system.

Since Huntsville has taken up the power question with the object of serving a large tannery there, in addition to taking care of its municipal requirements, preliminary forms of agreements between Huntsville and the Commission and between Huntsville and the tannery were drawn up. These have been submitted for the consideration of the corporation and other parties interested. A final arrangement has not yet been arrived at, the proposition being still under consideration.

Ingersoll

Satisfactory progress is to be noticed in the year's operation in Ingersoll. A large number of lighting consumers have been connected to the system, resulting in an increase in the yearly surplus, although the rates in force have been much lower than those during the previous year. The increased load due to lighting has also resulted in a marked improvement in the load factor of the system, since the demand of the town is due to the power load carried.

Iroquois

As requested by ratepayers of the Village of Iroquois, a report was made on a proposed franchise to be granted by the municipality covering electric power and lighting service within the limits. An investigation was also made of the local conditions, which was covered by a report.

Kemptville

The enabling by-law was carried in Kemptville at the January elections by a large majority.

Kenmore

The following estimated costs of power were submitted to the Police Village of Kenmore:

75 h.p.	$42.06 per h.p. per year.
125 h.p.	$36.71 per h.p. per year.

These rates were for power delivered to the municipality at a voltage suitable for distribution within its limits.

Kingston

In accordance with a request from the municipality, a valuation was made of the generating plant and distributing system of the Kingston Public Utilities, which was submitted.

Preliminary to submitting a new schedule of rates in Kingston for use in billing power consumers, a report was made on the municipal generating plant, giving full details of operating costs and the load carried. From this a schedule of rates was prepared and submitted.

The owner of a generating plant at Kingston Mills entered into negotiations for the City of Kingston to use his surplus power until such time as power would be available from the Commission. The arrangements under which this power is to be delivered are at present in making, the Commission acting in an advisory capacity for the municipality.

London

The London load has continued to increase very rapidly during the year, the maximum of 3,391.5 h.p. for 1913 having grown to 5,047 h.p. for the last current month, which exceeds the London contract amount, viz., 5,000 h.p., and has been obtained in the face of keen competition.

Assistance was rendered London in drawing up an agreement covering the supplying of power to the London Street Railway by the municipality. After this was signed they were assisted further in laying out preliminary plans, choosing equipment and giving instructions as to its installation.

In response to a request an estimate was prepared of the cost at which different proposed systems of street lighting could be operated as extensions to the present system.

It was proposed that the supplying of power to the London Hospital for Insane, which was being taken care of by the Commission, be transferred to the City of London. Negotiations to this end were entered into, with the result that this arrangement was made, the Hospital continuing to receive its power at the same rates as given by the Commission.

Lucan

The Village of Lucan was advised that $7,500.00 would be required to cover the cost of a local distributing system and also that 100 h.p. could be delivered at an estimated cost of $47.74 per h.p. per year for 4,000 volt power. A debenture by-law for the above amount was carried on June 26th.

An agreement covering the delivery of 100 h.p. at the rate submitted was forwarded to the municipality. This was signed on June 30th.

Plans were drawn up covering a municipal distribution system, and instructions issued covering the installation as soon as the municipality's approval was received.

Markdale

This municipality was advised that 150 h.p. could be delivered from the Eugenia Falls development at an estimated cost of $23.02 per h.p. per year.

Midland

Satisfactory progress is to be noted in the operation of the Midland municipal system, both as to finances and load, in which latter the demand has increased from 315 h.p. taken during 1913, to 391 h.p. for the current year. Further contracts for large blocks of power have been obtained and preparations are now being made to give service.

Milton

Assistance was rendered Milton in soliciting new power consumers, and to laying out lines to serve them.

Applications were received for power and lighting service in Esquesing Township in districts close to the Milton town limits. It was proposed that Milton serve these districts, and negotiations to this end are now in hand.

A number of difficulties have been adjusted, and the utility has been placed on a very satisfactory financial basis.

Mimico

Mimico has continued to show very satisfactory results, both as to financial conditions and load, the latter having grown steadily from 71 h.p. for October, 1913, to 114 h.p. for the last current month. Additional demands of about 300 h.p. have also been taken from the Mimico Distributing Station, from which Mimico benefits indirectly.

Assistance has been given Mimico in laying out extensions to serve new districts, both in the village and in certain portions of Etobicoke Township, close to the village limits.

Mitchell

Although there have been no new developments in Mitchell during the year, yet reports show the utility to be on a very satisfactory basis financially, there being a fair margin of profit from the operation of the system.

Mount Brydges

Further estimates having been made of the cost of power to Mount Brydges, the rate, $50.42 per h.p. per year, was submitted. This was on the basis of Mount Brydges taking 25 h.p. at 2,200 volts, Lambeth 70 h.p. and Strathroy 200 h.p. They were advised later that the same amount of power could be delivered at 4,000 volts for $47.12 per h.p. per year.

The municipality was also informed that $4,220.00 would be required to cover the cost of a distribution and street-lighting system, and instructions have been given as to the preparation of the enabling and money by-laws.

Mount Forest

In accordance with the estimates of the cost of power to municipalities from the Eugenia Falls development, Mount Forest was advised that 400 h.p. could be delivered at a cost of $34.51 per h.p. per year, at a voltage suitable for distribution within the town limits.

New Hamburg

There have been no developments of interest in New Hamburg during the year. The operation of the utility has been satisfactory, there being a fair margin of earnings in excess of expenses.

New Toronto

The construction of the New Toronto distribution and street-lighting system, as originally laid out was completed about the end of January. Service had, however, actually been commenced before the beginning of the year, and each new section was made alive as soon as completed.

Assistance has been rendered the local officials in working up a load for their system. They have also been advised on various details of management.

Applications were received for service in certain portions of Etobicoke township close to the village. It was proposed that New Toronto take care of these, and an agreement covering the proposed township service was drawn up and signed. Extensions have been built to serve the original applicants in the township, while others are now in course of construction.

Niagara Falls

A further request for an estimate of the cost of delivering 5,000 h.p. to Niagara Falls having been received, the following rates were submitted:—

5,000 h.p. at 12,000 volts	$11.00 per h.p. per year.
5,000 h.p. at 2,200 volts	$12.00 per h.p. per year.

Norwich

A report was prepared covering the proposed waterworks installation and submitted to the municipality. This system was installed during the summer, the department acting in an advisory capacity in regard to the installation of electrical equipment for the operation of the pumps.

Petitions asking for estimates on rural service in North Norwich and Burford townships between Norwich and the Villages of New Durham and Hatchley were received. These estimates were prepared and it was recommended that Norwich take care of this business as was done in the case of the district between Norwich and Newark. The extensions are now under construction.

Reports of operation in Norwich show very satisfactory results financially. There has been no increase in the load taken from the Commission, but such power as is taken is so distributed among the various consumers as to give a very high load factor.

Ottawa

Since the load taken by the City of Ottawa was about to exceed the contracted amount new arrangements were drawn up and signed for the supply of from 5,000 to 20,000 h.p. for Ottawa and the surrounding district.

Power is to be supplied at 11,000 volts at the following rates in addition to the annual charges on the expenditure by the Commission for its delivery:—

Up to 8,000 h.p.	$14.00 per h.p. per year.
8,000 to 10,000 h.p.	$13.50 per h.p. per year.
10,000 to 12,000 h.p.	$13.00 per h.p. per year.
12,000 to 14,000 h.p.	$12.50 per h.p. per year.
14,000 to 16,000 h.p.	$12.00 per h.p. per year.
16,000 to 18,000 h.p.	$11.50 per h.p. per year.
Over 18,000 h.p.	$11.00 per h.p. per year.

During this year Ottawa has enforced the standard schedule of rates as recommended by the Commission. Assistance has been rendered the local officials in making the change and in overcoming difficulties arising out of the application of the new system of charges.

Owen Sound

An agreement was signed with Owen Sound for the supply of 800 h.p. early in November.

Owen Sound is to be supplied from the Commission's development at Eugenia Falls. There have been no developments in this municipality during the year other than making preparations to receive the power that will be delivered to them over the Commission's lines.

Paris

Construction work in Paris covering the lighting and street lighting systems was completed and made alive by temporary arrangement on January 8th.

A representative has visited Paris at regular intervals who has advised the local officials on details of management of the utility. He has also assisted them in soliciting power consumers. Present prospects are that a number of consumers of large blocks of power will be connected during the coming year.

An agreement covering the delivery of power by Paris to the City of Brantford for railway operation has been drawn up and submitted. (See report on Brantford).

Penetanguishene

An investigation was made of the advisability of the municipality installing a second electrically driven pump for its waterworks system, and recommendations were submitted to the local officials who in return asked the department to prepare specifications and to call for tenders on equipment as recommended. Instructions were issued accordingly.

Operating reports show very satisfactory conditions in Penetanguishene, with a fair margin of earnings in excess of expenses. Although financial depression has prevented the addition of much new load to the system that was anticipated at the end of the previous year, yet there is reason to believe that with the return of normal conditions considerable additional motor capacity will be connected.

Peterboro'

The construction of an underground street lighting distribution system with the installation of ornamental magnetite lamps in the business district was completed and put into operation during December.

Arrangements were made for a temporary supply of power to Peterboro at $18.00 per h.p. per year.

Peterboro took over the management of the power, lighting and street lighting systems on October 1st.

Steps have been taken towards arbitrating the value of the local plant taken over by the city. The inventory taken by the distributing company has been checked and an appraisal made. An inventory and valuation have also been made of the Company's stores department which is also taken over by the city. Arbitrators have been appointed to handle the case.

Plattsville

The Police Village of Plattsville was given an estimated cost of $49.27 per h.p. per year for 100 h.p., and advised that $5,200.00 would be required to cover the cost of a distribution and street-lighting system. A by-law authorizing an issue of debentures for this amount was carried about the end of January.

An agreement covering the delivery of 100 h.p. at the above estimated cost was submitted and signed about the middle of March.

Instructions were prepared covering the installation of the Plattsville distribution system.

A schedule of rates to be used in billing power and lighting consumers, was drawn up and submitted. Assistance is being given the local officials in working up power and lighting business so that the consumers will be ready for service as soon as the Commission's line and the Village distribution system are completed.

Port Arthur

In addition to advising the local officials on minor details of management, the following were taken up during the year:

Further recommendations were made covering changes in the Current River generating plant to improve its operation and permit of its being tied in with the Commission's transformer station. Action was taken by the City along the lines recommended, and construction work is now in hand.

Engineering advice was given in connection with the installation of new electrically driven waterworks pumps, and transmission lines to serve them. This work has been completed and the equipment placed in operation.

Financial reports show very satisfactory conditions as a result of the operation of the utility. Although a considerable reduction was made in the rates for power to consumers, there is still a fair margin of earnings for the year.

The average load taken from the Commission during the year was 2,730 h.p. while a demand of over 2,500 h.p. was made. This is additional to the power generated by Port Arthur at the Current River plant.

Port Colborne

The following estimated costs were submitted to this municipality:

100 h.p.	$43.33 per h.p. per year.
250 h.p.	$26.44 per h.p. per year.
500 h.p.	$20.86 per h.p. per year.

These rates were for power delivered at a voltage suitable for distribution within the corporation limits.

Port Credit

Further engineering assistance was given Port Credit in connection with extensions to the municipal distribution systems as well as advice on details of management. The operation of the village system has been quite satisfactory both as to finances and load which latter has increased steadily from 35.5 h.p. taken during October, 1913, to 55 h.p. for the last current month.

Port Dalhousie

This municipality requested permission to serve certain districts in Louth Township close to the village limits. The proposition was investigated and a schedule of rates submitted. A representative visited the municipality a number of times during the year to advise the local officials on the management of their system.

Reports show the financial condition of the utility to be quite satisfactory.

Port McNicoll

The estimates that were submitted gave the following results for 4,000 volt power:

25 h.p.	$34.00 per h.p. per year.
60 h.p.	$26.00 per h.p. per year.

It was advised that $3,200 would be required for the construction of a municipal distribution and street-lighting system. A contract has been signed by Tay township for power to this village.

Plans covering the distribution system were prepared and materials ordered. Construction work was started about the middle of October, and is being rushed ahead as fast as possible under the supervision of the Department.

(See report on Tay Township).

Port Stanley

In addition to advising Port Stanley on a number of minor details in reference to the management of the utility, an investigation was made of the method of handling the business in the summer resort districts to ascertain the advisability of giving service during the whole year, and the rates at which such service could be given. Recommendations were prepared, which were submitted to the municipality, and adopted.

Operating reports continue to show very satisfactory financial conditions in this village, there being a fair margin of earnings. It is also of interest to note that during the months of July and August the demand of the village system on the Commission's lines exceeded 140 h.p., while the load during the winter months approximated the contracted amount of 50 h.p. The average load for the whole year was 84 h.p.

Prescott

The work of reconstruction of the Prescott distributing system was carried on under the supervision of the department and was completed towards the end of March.

A schedule of rates was drawn up and submitted for use in billing power and lighting consumers. Assistance has been given the local officials in working up a power load as well as advice on a number of details of management and operation.

An investigation and report were made of the general operating conditions in Prescott and recommendations whereby material savings could be effected were submitted to the municipality.

The demand of the Prescott system on the Commission's lines has been growing steadily and has reached 180 h.p. during the last current month.

Preston

The local officials at Preston were advised on a number of minor details of management and operation of the utility in addition to the following:—

Preston had received a request for power service for a small load at Speedville, not far from the limits. Having been asked for advice on this question, a schedule of rates, based on estimates of the cost of making the extensions, were submitted.

Recommendations were made as to the rates to be used by Preston in billing consumers in suburban districts.

An investigation was made of the load conditions on the Doon line, to ascertain the advisability of making a reduction in the rates at present in use.

Financial reports show a very satisfactory condition in Preston, there being a fair margin of earnings, although the rates were reduced considerably. There has been but small increase in the load taken from the Commission, the additional power taken resulting in an improved load factor.

Princeton

In the report on Ayr it is stated that the estimated cost of 25 h.p. to Princeton was $69.95 per h.p. per year, for 2,200 volt power. This rate was submitted to the municipality early in December. They were also advised that $3,350 was required for the construction of the distribution and street-lighting systems. A by-law to authorize an issue of debentures for that amount was carried at the January elections.

An agreement covering the delivery of power to Princeton was submitted towards the end of February and signed.

Plans were prepared of the village distribution system and orders placed for materials. The system is at present under construction.

A schedule of rates for use in billing power and lighting consumers was prepared and submitted to the municipality.

Renfrew

The report submitted to Renfrew gave recommendations covering changes to be made in the street-lighting system. It also contained valuations of the plants and equipments of the local companies together with suggestions as to remodelling these systems to improve the service in the town. During March a representative visited Renfrew who explained the various details covered by the report.

As requested by the town further investigations were made and estimates prepared covering an ornamental street-lighting system in certain districts together with the cost of the system for the rest of the town if this arrangement were used. These estimates were submitted together with a report giving a general description of the proposed system.

A by-law authorizing an issue of debentures for $16,000.00 to cover the installation of the street-lighting system was carried on July 18th.

Assistance was rendered in fixing damages to lands and other property, due to the town's hydraulic development. This work included the valuating of the properties damaged.

Rockwood

There have been no developments of interest in Rockwood during the year.

New consumers have continued to come on at a satisfactory rate, which has resulted in the utility being placed on a firm financial basis.

Russell

After further investigating the power requirements of this district, Russell was advised that 350 h.p. could be delivered at an estimated cost of $30.05 per h.p. per year.

Sandwich

This municipality was advised that approximately $7,000.00 would be required to cover the construction of a local distribution system. The enabling by-law and a debenture by-law for this amount were submitted to the ratepayers at the January elections, but owing to a very active campaign by private interests both by-laws failed to pass.

Sault Ste. Marie

The municipality of Sault Ste. Marie submitted a schedule of rates proposed by the local distributing company in the event of its obtaining a new franchise, for the Commission's comments. After making a study of the proposed schedule, a report was submitted.

Later, when arbitration proceedings were started to fix a basis for the town's purchasing the distribution systems of the local company, the Commission was requested to make an appraisal of the equipment to be taken over. A representative visited the municipality and made an inventory of the system, from which a detailed statement of valuation was prepared and submitted.

Sault Ste. Marie has purchased the distribution and street-lighting systems from the local company, and is now operating the same as a municipally-owned utility.

Seaforth

Reports covering the operation in Seaforth show satisfactory results. Consumers of both light and power have continued to be connected to the system, which has been maintained in excellent condition. The finances of the utility continue to show a fair margin of earnings over expenses, with a substantial reduction in rates. There has been no marked increase in the load taken from the Commission, the power taken by new consumers having resulted in improving the load factor.

Shallow Lake

In the preliminary estimates of the cost of power to municipalities from Eugenia Falls, Shallow Lake was included for 800 h.p. It was found that this amount could be delivered at the rate of $30.92 per h.p. per year for 2,200 volt power. The results of this estimate were submitted to the municipality towards the end of February.

An agreement for the supplying of power to a prospective consumer near Shallow Lake is at present in course of preparation. The Company's acceptance or refusal of this agreement will be the controlling factor in the proposition of serving the village.

Shelburne

It was estimated that 300 h.p. could be supplied to Shelburne from the Eugenia Falls development at a cost of $39.19 per h.p. per year for 2,200 volt power, which rate was submitted.

Simcoe

At the request of the municipality a valuation was made of the privately owned street lighting system, and a report submitted. It was also advised that 200 h.p could be delivered at the rate of $35.00 per h.p. per year, and that $40,000.00 would be required to cover the cost of installing a street lighting and distribution system. The enabling by-law and a debenture by-law for this amount were both carried on June 26th.

An agreement covering the delivery of 200 h.p. at an estimated cost of $35.00 per h.p. per year, was submitted. After this had been signed plans were prepared covering the proposed municipal system. These were approved by the local officials and construction work is now progressing, the Department acting in a consulting and supervising capacity.

Smith's Falls

The following estimated costs were submitted for different amounts to this municipality, based on transmitting power to Smith's Falls and Carleton Place from Chaudiére Falls on the Ottawa River:

With Smith's Falls taking 500 h.p. and Carleton Place taking 100 h.p., $52.07 per h.p. per year.

With Smith's Falls taking 1,000 h.p. and Carleton Place taking 200 h.p., $34.02 per h.p. per year.

With Smith's Falls taking 2,000 h.p. and Carleton Place taking 200 h.p., $27.35 per h.p. per year.

St. Catharines

The enabling and debenture by-laws having been carried in St. Catharines, the Commission, in behalf of the municipality, entered into negotiations with the Ontario Power Company to purchase the company's distribution system, then operating in St. Catharines, and to obtain a supply of power. An agreement was finally reached in the middle of March. By taking over this distribution system, the municipality assumed the agreements for power service then held by the company. It was arranged that the company would supply power directly to the municipality until such time as the Commission would be in a position to handle the load.

An agreement covering the supplying of power to St. Catharines by the Commission was drawn up and signed. This will go into effect at such time as the Commission is able to deliver the power to St. Catharines, when the present temporary arrangement with the Ontario Power Company will be terminated.

A manager was appointed by the City of St. Catharines, who took charge of the system about April 1st. Since that time extensions have been built to the distributing system purchased by the municipality, so that a municipal distribution and street lighting system to serve the whole city is approaching completion.

St. Catharines obtained considerable load upon taking over its system, and this has been steadily increasing, due to the large number of consumers of both light and power who have started service.

St. Clements

See report on St. Jacobs.

St. Jacobs

The following estimated costs for power to municipalities from the Berlin-Elmira line were submitted, the rates being for power delivered at 4,000 volts:

St. Jacobs, 50 h.p.	$29.04 per h.p. per year.
St. Clements, 50 h.p.	$42.68 per h.p. per year.
Conestogo, 50 h.p.	$36.59 per h.p. per year.
Floradale, 40 h.p.	$51.57 per h.p. per year.

St. Jacobs was advised that 50 h.p. could be delivered at the rate of $36.26 per h.p. per year for 4,000 volt power transmitted from Elmira, and also that $1,312.00 would be required to cover the cost of a distribution of street lighting system.

St. Mary's

A report was prepared and submitted to the municipality covering changes that had been recommended for its distribution system. This also contained suggestions as to changes required in the street lighting system. The municipality

has remodelled the street lighting system as suggested, but has not done any construction work along the lines of the other recommendations.

In accordance with a request, a proposition was submitted for the supplying of power to a new cement mill to be erected near St. Mary's.

Although there has been no marked growth in the load taken by St. Mary's, reports show the utility to be in a very satisfactory condition both as to number of consumers connected and finances.

St. Thomas

The amount of power taken by St. Thomas has continued to show satisfactory growth during the past year. This load, which was 1,173 h.p. during October, 1913, has increased to 1,665 h.p. for the last current month. In this connection it will be remembered that the St. Thomas contract is for the delivery of 1,500 h.p.

In addition to advising the local officials on minor questions of management and operation of the system, a study was made of the conditions under which power was supplied to the street railway. In the report that was submitted to the municipality it was advised as to the operation of the station equipment, and recommendations were made as to changes and additions that should be made. A new system of charge for this power was also recommended.

Following the suggestion of erecting a transformer station in the southern part of the city, estimates were prepared of the cost of making this installation, which were submitted to the municipality.

A report was prepared and submitted on the street lighting system in St. Thomas, showing the details of costs for various styles of lamps in use and recommending changes to be made in the installation.

Operating reports show very satisfactory results for the year's business. A large number of new consumers of both light and power have been connected, which has necessitated increasing transformer and distributing equipment. Financial statements show a fair surplus in the face of a large reduction in rates made at the beginning of the year.

Stamford Township

The Council of this township proposed to take over the system of a distributing company operating in the district around Niagara Falls, and to operate it as a municipally owned plant under Hydro-Electric control. As a preliminary to entering into negotiations for the transfer of the equipment to the township, a valuation has been made of the company's property, a report on which has been submitted to the municipality.

Stayner

Reports on the first year of operation in Stayner show satisfactory results. Although the town took over a plant that had been operating some years, yet a large number of new consumers have been taken on and the load of about 30 h.p. that was taken during the first months has been increased to over 80 h.p. Financial statements show a fair margin of earnings over expenses.

Stratford

The Commission was requested to act in an advisory capacity in the purchase and installation of an additional pump for the waterworks system. An investigation was made of the requirements, preliminary to calling for tenders on equip-

ment. After quotations had been received recommendations were submitted for a guide to the municipality in placing the order. Plans were also drawn up covering its installation in the pumping station. The apparatus is now being installed.

Since the boilers of the waterworks steam auxiliary need replacing, a study is being made of the proposition of installing gasoline driven units to replace the present steam. Details have been obtained as to the size of the units that will be required, and instructions have been issued for obtaining tenders and other information.

Assistance has been rendered Stratford on a number of details of management of the utility. Reports show a continued satisfactory growth in the number of consumers, finances and load, which latter has increased from 791 h.p. for October, 1913, to 1,005.5 h.p. for the year just closed.

Streetsville

During 1913 two brick manufacturers located at Streetsville contracted with the Commission for power service and an extension was built from the line serving Milton to supply it.

It was deemed advisable that the village of Streetsville take over this business, and accordingly negotiations to this end were entered into early in the present year. The municipality was advised that the cost of the portion of the Commission's system to be turned over to them was $6,000.00, and towards the end of March a debenture by-law covering this amount and the enabling by-law were passed.

An agreement covering the supply of 200 h.p. to Streetsville, at an estimated cost of $26.00 per h.p. per year, was submitted to the municipality and signed towards the end of May.

The contracts for power were turned over to Streetsville soon after this, the village being allowed all benefits from the sale of this power from May 1st.

Stouffville

This municipality carried a debenture by-law at the January elections to raise $7,000.00 to acquire and reconstruct the local distribution system. Plans were prepared covering the work to be done, and the town having purchased the plant and equipment of the local company, reconstruction was commenced, the department acting in an advisory and supervisory capacity. This municipality is continuing the operation of the old steam plant until such time as the Commission can deliver power.

Strathroy

The enabling by-law was carried at the January elections by a large majority and a debenture by-law for $25,000.00 to be used for Hydro-Electric purposes, was carried on February 14th. An agreement covering the delivery of 200 h.p. at an estimated cost of $44.07 per h.p. per year, was submitted to the municipal officials and signed during March.

Plans were prepared covering the reconstruction of the distribution and street lighting system; the work has been completed under the supervision of the Department and the system is ready for connection to the Commission's lines.

A schedule of rates has been prepared and submitted to the municipality, and an effort is being made to work up a load among the power users.

Sunderland

Plans were prepared for the reconstruction of Sunderland's distribution system, and orders placed for the materials required. Construction work was carried on under the supervision of the Department and the system was completed and ready to receive power upon the completion of the Commission's lines. Power was delivered to Sunderland on October 16th.

A schedule of rates was recommended for use in this municipality for billing power and lighting consumers and assistance is now being given in working up a power load.

Tay Township

The residents of the township villages of Port McNicoll and Waubaushene being desirous of electric lighting and power service, the Township Council passed a by-law early in February to enter into a contract with the Commission for a supply. An agreement was drawn up and submitted, covering the delivery of 100 h.p., 50 h.p. being required by each village. This agreement was signed early in March.

(See reports on Port McNicoll and Waubaushene.)

Tavistock

Having been requested to prepare a further estimate on the cost of 100 h.p. to Tavistock, this was worked out and the rate of $49.50 per h.p. per year was submitted for 2,200 volt power.

On June 5th the village carried the enabling by-law and a debenture by-law for $6,000.00 to be used in acquiring and reconstructing the local distribution system.

An agreement, covering the delivery of 100 h.p. to Tavistock at the estimated cost of $49.50 per h.p. per year, has been drawn up. This, however, has not been submitted pending investigations to find if a larger load will be taken. Further estimates have been prepared of the cost of delivering the larger amount of power that may be required and also of supplying a small load at Shakespeare from this point. Schedules of rates have also been prepared for use in Tavistock and Shakespeare, if this larger amount of power is taken, for use in these investigations.

Thamesford

The distribution system in Thamesford was completed and made alive on January 27th. Since then assistance has been rendered the local officials in working up a power load, a schedule of rates having been recommended. Engineering advice was also given their new power consumers in choosing their electrical equipment and preparing plans covering its installation.

Although this municipality has been using electricity for only a portion of a year, reports show that the utility is already placed on a safe financial basis.

Thorndale

Construction work in this village was completed, and power delivered on January 27th. Since then the local officials have been working up a power and lighting business, using rates that had been recommended.

A request was received for power service to a manufacturer in West Nissouri Township near the Commission's line serving Thorndale; after investigation an agreement was drawn up and submitted. This will be turned over to Thorndale as soon as service is given.

Tilbury

The enabling by-law and a debenture by-law authorizing an issue of $10,000.00 for Hydro-Electric purposes, were both carried early in February.

A valuation was made of the system of the local distributing company, on behalf of the corporation, for use in purchase proceedings. It was arranged, after extended negotiations that the town take over this system.

An agreement, covering the delivery of 250 h.p. at an estimated cost of $39.45 per h.p. per year, was submitted and signed early in May.

Plans covering the reconstruction of the municipal distribution are now in the course of preparation. This work will be carried on under the supervision of the Department.

Toronto

Further growth is to be noted in connection with the Toronto municipal system which is very satisfactory. There has been a large increase in the number of consumers, both lighting and power, which is reflected in the increase shown in the load taken from the Commission. This load has grown from the maximum of 17,997 h.p. taken during 1913, to 22,520 h.p. during the year just closed.

A few more extensions have been built to give suburban service in York Township under the arrangements made in 1912.

It was proposed that Toronto purchase the lines and equipment of a privately owned distributing company, operating in a portion of the city. A valuation was made of this system, a report on which was submitted to the local commission with recommendations.

Toronto Township

A number of extensions have been built to the Toronto Township system to serve new consumers, and a large number of new services connected to the system previously built. Prior to making each new extension, an estimate was prepared of its cost to ascertain whether it would be financially beneficial to the rest of the system if the applicants were given service. The number of the consumers in the township has been increased approximately 60 per cent.

The service in this township was started on a flate rate basis; this has been changed to a meter basis and meters have been installed in nearly all services.

Reports show the utility to be on a firm financial basis, there being a fair margin of earnings over expenses after the first year of operation. The load taken from the Commission's system has been increasing steadily, and has reached 126 h.p. during the last month covered by this report.

Uxbridge

As requested by the municipality, a report was made on the condition and operation of the plant and distributing equipment of the local electric light company.

Victoria Harbor

Upon the Commission's purchasing the generating plant and distributing system of the Simcoe Railway and Power Company, the system within this village also came under the Commission's control. A valuation will be made of that portion of the system within the village, after which it will be turned over to the municipality. The village has requested permission to serve some consumers outside its limits by building an extension to the system. After investigation the request was granted.

Walkerton

The following estimated costs were submitted to Walkerton for power delivered at 2,200 volts:

150 h.p.	$58.11 per h.p. per year.
250 h.p.	$39.66 per h.p. per year.

Walkerville

The enabling by-law and a debenture by-law to authorize raising $58,259.00 for Hydro-Electric purposes were both carried on December 6th. Soon after this the form of agreement covering the delivery of power to Walkerville, which had been previously submitted, was signed. This agreement is for 1,500 h.p. at an estimated cost of $38.00 per h.p. per year.

The municipality requested the Commission to make a valuation of the distributing system of the local company, to be used in negotiations for its purchase by the corporation. An inventory and appraisal were made which were submitted in a detailed report. After a number of conferences between the company and the local Commission, which were attended by a representative, an agreement was finally reached. The municipality assumed the operation of this system on August 20th.

A superintendent was appointed to take care of new construction in the town, working under the supervision of the Department. A site was chosen for a municipal distributing station and instructions were issued, covering the equipment to be installed.

On October 10th a second debenture by-law for $26,000 for the purchase of the local street lighting system was carried.

Hydro-Electric power was delivered to Walkerville on October 29th.

A resolution by the Council of Ford City recommended that Walkerville construct a distribution system within its limits. After investigating conditions, it was recommended that this agreement be entered into. Construction work in Ford City is now in progress.

Wallaceburg

The town was advised that $25,000.00 would be required to take care of the installation of a new power and lighting distribution system and street lighting system. An estimate was also given, covering a portion of the street lighting system for certain districts that had been omitted, where an ornamental lighting system was required. This estimate gave an addition of $3,855.00.

A report was prepared on the franchise of the local distributing company and also a valuation of its electric system, and an estimate was prepared of the cost of remodelling the lines for use with Hydro-Electric power. This report and estimate were submitted to the municipality.

The enabling by-law and a debenture by-law for $25,000.00 were both carried on May 28th.

An agreement covering the delivery of 500 h.p. at an estimated cost of $38.45 per year, was drawn up, which was signed by the municipal authorities on June 30th.

The municipality has taken over the distributing system of the local company and this is being remodelled, the work being carried on under the supervision of the Department, which has prepared plans covering all details.

Rate schedules were prepared and recommended for use in Wallaceburg in billing power and lighting consumers for service.

Waterdown

Further growth is to be noted in the load taken by Waterdown during the year; this has increased from 40 h.p. taken during 1913, to 72.5 h.p. for the last current month. It will be remembered that Waterdown's contract is for 50 h.p. The load taken by the Dominion Sewer Pipe Company also shows a similar increase, having grown from 248 h.p. to 362.5 h.p.

In addition to advising the local officials on various details of management, a study was made of a proposition to serve a section of East Flamboro Township, known as the Plains Road district, from which petitions have been received. It was recommended that Waterdown take over this business, and an agreement was entered into accordingly. The Waterdown system has been extended to cover the district and service is now being given at rates that had been recommended.

Waterford

The enabling by-law and a debenture by-law for $7,000.00 to be used for Hydro-Electric purposes, were both carried at the January elections.

An agreement was drawn up and submitted, covering the delivery of 150 h.p. at an estimated cost of $37.00 per h.p. per year, which was signed by the municipal officials on September 8th.

Plans covering the reconstruction of the municipal distribution system are being prepared. This work will be carried on under the supervision of the Department.

Waterloo

Reports covering the operation of the Waterloo municipal system show satisfactory results for the year, with a fair margin of earnings over expenses, although a substantial reduction was made in the lighting and power rates. There has been no increase in the load taken from the Commission's system, the additional load that has been taken by new consumers having resulted in increasing the load factor.

A petition was received asking for rural service in a section of Waterloo Township, close to the town limits of Waterloo. It was recommended that Waterloo take charge of this business. An extension has been built to the Waterloo system and service is now being given in the section covered by the petition.

Waubaushene

The Council of the Township of Tay were advised that 50 h.p. could be delivered to Waubaushene at an estimated cost of $29.75 per h.p. per year, and that $3,000.00 would be required for a local distribution system.

After the township had signed a contract for a supply of power, plans were drawn up, covering the village installation. Construction work is now approaching completion, the Department acting in an advisory capacity.

(See report on Tay Township.)

Welland

In addition to advising the local officials on questions of management of the system, they were assisted in soliciting additional power load. A number of new contracts were obtained, some of which were for large blocks of power. Engineering assistance was given in laying out extensions to serve these new consumers, and to some of the new power consumers in choosing their equipment and in preparing plans covering their installations. A large number of lighting consumers have also been connected.

The load taken by Welland has increased to approximately 600 h.p. With the addition of some new consumers, not yet connected, it is anticipated this load will exceed 1,500 h.p. The Commission is also serving a manufacturer near Welland on a contract for 16,000 h.p., the load on which has reached 15,677 h.p. Welland benefits by this load.

Financial reports show satisfactory results in Welland during the year, there being a fair margin of earnings over expenses.

Wellesley

The following estimated costs were submitted for power to the Police Village of Wellesley:

50 h.p.	.....	$45.69 per h.p. per year.
75 h.p.	.....	$37.22 per h.p. per year.

These rates were for power delivered at 4,000 volts.

Weston

Further growth is to be noted in the load taken by Weston, it having increased from 151 h.p., the greatest amount taken during 1913, to 195 h.p. during the year just closed. Reports show the utility to be in a very satisfactory condition, both as to operation and finances.

Petitions were received from Etobicoke Township, asking for power and lighting service, near Weston, in what is known as the Scarlet Road district. It was recommended that Weston take care of this extension at rates that had been suggested. This arrangement has been made and service is now being given to a portion of this district, while further extensions are under construction.

Williamsburg

The Police Village of Williamsburg was advised that 45 h.p. could be delivered at $26.00 per h.p. per year.

The enabling by-law was carried on February 16th by a vote of 39 to 1.

An estimate was prepared of the cost of installing a distribution system in the municipality. This showed that $3,000.00 would be required to cover the work and the municipality was advised accordingly. After going over the details with the village trustees, it was found that this estimate could be reduced to $2,750.00. A debenture by-law for this latter amount was carried on October 19th unanimously.

An agreement was drawn up and submitted covering the delivery of 20 h.p. at an estimated cost of $34.66 per h.p. per year.

Winchester

Hydro-Electric power was delivered to Winchester on December 18th, when the street lighting system was put into operation, temporary service being given from Morrisburg. Upon the completion of the Winchester distributing station on July 18th the service was changed over to the permanent arrangement. The load taken by the village has reached 55 h.p., and every effort is being put forward to work up a substantial load in this district. Meetings have been held in rural districts to interest the farmers in the use of electricity; also a demonstration was made at the local Fall Fair to encourage the use of power consuming household appliances.

Windsor

The municipality requested the Commission to make a valuation of the plant and distributing equipment of the local company, to be used in purchase proceedings. An inventory and valuation were made, and were submitted to the city officials in a detailed report, together with recommendations. After extended negotiations to purchase the property of the local company, it was finally decided that an agreement could not be reached.

The municipality then decided to construct a new distributing system of its own. A superintendent was recommended and a construction department organized. Plans were laid out covering the system and orders were placed for the materials required. Construction work was carried on under the supervision of the Department.

Instructions were issued covering the installation of the municipal distributing station.

An underground distributing system, covering certain districts, was designed and laid out, and the necessary materials purchased. The construction of this system was also supervised.

Hydro-Electric power was delivered to Windsor on September 12th, when the street lighting system was put into operation. Since then a large number of both lighting and power consumers have been connected. As a result, a load of 590 h.p. was taken during the last current month.

Woodbridge

Woodbridge was advised that 100 h.p. could be delivered for $33.83 per h.p. per year. It was also advised that $5,207.75 would be required to cover the cost of a local distributing and street lighting system.

The enabling by-law and a debenture by-law for this amount was carried on May 6th, and on May 7th an agreement covering the delivery of 100 h.p. at the rate submitted was signed by the village officials.

Plans were prepared of the municipal distribution system and instructions were issued for the construction of a distributing station.

Construction work in the village is at present in hand and nearing completion under the supervision of the Department. Temporary service has been given since October 12th.

A schedule of rates has been drawn up and submitted to the municipality for use in billing power and lighting consumers.

Woodstock

Conditions have continued very satisfactory in Woodstock during the year. Operating reports show a fair margin of earnings over expenses, although a sub-

stantial reduction was made in the rates. There have been no developments of importance within the municipality, although assistance has been rendered in connection with a number of minor details.

Woodville

The distribution system was reconstructed under the supervision of the Department, and was ready for service upon the delivery of power from Wasdell's Falls. This service was commenced on October 19th.

A schedule of rates was drawn up and submitted for use in billing consumers for lighting and power service. An effort is being made to work up a load in this municipality with the assistance of the Department. Instructions are also being given in regard to the management and operation of the system.

Yarmouth South Township

A small extension has been built to give rural service in a section of this township close to the City of St. Thomas. This extension is being operated by St. Thomas, using rates recommended by the Commission.

York Township

Further extensions have been built in this township to serve districts close to the limits of the City of Toronto under the agreement made in 1912. In addition to these, petitions have been received from districts lying farther out which could not be handled as suburban service. Estimates have been prepared covering each district to ascertain the advisability of making the desired extensions.

Zorra East Township

The various details in connection with the estimate that had been prepared of the cost of serving petitioners, were discussed with the local officials, and at a meeting held towards the end of January, which was attended by the petitioners, it was decided to make a canvass of the township for contracts. A committee was formed to conduct this canvass and instructions were given them.

Service is being given to certain rural consumers in this township close to Woodstock, from extensions to the Woodstock system.

MUNICIPAL ACCOUNTS

The actual results from municipal distribution of Hydro power are shown in the tables submitted in this section. In accordance with the requirements of the Ontario Government the municipal year, with the exception of London, ends on December 31st. The tables which follow under "Municipal Accounts" cover the calendar year ending December 31st, while all other sections of the annual report deal with the fiscal year ending October 31st.

The work of standardizing the electrical accounts of the Hydro-Electric municipalities commenced in 1912 has been continued. During the year new books were opened in Brantford, Windsor, Peterborough, St. Catharines, Goderich, Walkerville, Paris, Prescott, Clinton, Fergus, Elora, Winchester, Beaverton, New Toronto, Cannington, Chesterville, Streetsville, Sunderland, Creemore, Woodville, Thamesford, Thorndale, Woodbridge, Ayr, Drumbo, Plattsville, Princeton and Toronto Township, and the local officers instructed in the proper handling of the same.

A system of accounting for the public utilities of Kingston was prepared and submitted to the city.

A special report was made on the accounts of the Chatham Gas Co. and the Wallaceburg Electric Co. in connection with the proposed purchase of these systems by the Municipalities.

The Uniform Classification of Accounts for Electric Utilities issued by the Commission in 1911 has been revised during the year, and will be ready for distribution at an early date. The revised edition covers some important features which were omitted in the first issue, such as debenture and sinking fund payments chargeable against revenue, sinking fund reserves, depreciation, etc., and is now made up in three sections, all closely related, and adapted to the requirements of cities, towns and villages respectively. In actual practice it was found that the elaborate system outlined in the original issue was impracticable in the smaller municipalities.

A periodical inspection has been made of the electrical accounts of all Hydro-Electric municipalities, our accountants assisting the local officers by suggesting better or simpler methods of office routine, and in the case of smaller towns and villages, where the utility is in charge of men of little or no bookkeeping experience, actually doing all the accounting and some of the billing.

The system of monthly balance sheets and operating reports inaugurated has enabled the Provincial Commission to keep in close touch with the local conditions, and from these reports and other data which is collected or worked up by the auditors of municipal accounts, the capital costs and operating expenses are periodically divided into the principal revenue accounts, domestic light, commercial light, power and street light, these in turn being set against the respective revenues for the purpose of rate adjustment.

From this data the Hydro-Electric Power Commission is in position to authorize and enforce a schedule of selling rates in each municipality which makes each of the above-named revenue departments self-supporting, so that an excessively high rate in one does not take care of a deficit in another, to the manifest advantage of the latter.

The eight statistical reports which follow were prepared to give a comprehensive view of the present status of the electric utilities and the result from operation in the sixty-nine municipalities in which the service has been installed sufficiently long to justify a report.

The municipalities have been listed in the order of their size according to Municipal Bulletin No. 8, Bureau of Industries of the Ontario Department of Agriculture; the populations are shown and the statistics are prepared to permit an intelligent comparison of operating results in municipalities where conditions are similar. This is resulting in a friendly rivalry between the municipalities for an increased load, an efficient and economical administration, and an intelligent effort to improve the load factor, which is so essential to low selling rates.

Statement "A" is a comparative condensed balance sheet of each municipality as at December 31st, 1913, and December 31st, 1914, showing the plant cost in natural subdivisions, and other items making up the total assets. The true or quick liabilities, such as debenture balance, bank overdraft and accounts payable, are totalled separately before including such reserve accounts as debentures paid, sinking fund reserve, depreciation reserve and surplus. In this way the relative increase in plant value and net debt during the year in any municipality can be quickly determined.

The percentage of net debt to plant cost at the end of each year has been worked out, and shows a marked decrease. Special attention is called to this very interesting and gratifying result of municipal operation.

As it is the practice of the municipalities to invest in plant extension, not only the surplus but the depreciation reserve as well, rather than to place the money in bank at a low rate of interest and issue new debentures for extensions at a high interest rate, the total credits to depreciation reserve and surplus practically represent plant constructed from revenue, or uncapitalized plant.

Statement "B" is a condensed operating report for the year ending December 31st, 1914, showing the result in each municipality. The population and the number of consumers in each class is also given to facilitate comparisons. In some cases where the power was turned on subsequent to January 1st, the proportion of the annual fixed charges corresponding to the period of operation has been used, and in other municipalities where the operation covers a very short period, and no actual payment has been made, the fixed charges have been omitted entirely to simplify the accounting in future years and avoid the necessity for annual adjustments.

In some municipalities where it requires from six weeks to two months to close the books for the year, the figures are taken from the trial balances, which are substantially correct, but subject to revision on final audit.

Ordinarily a municipality is not considered self-sustaining unless the revenues are sufficient to meet all operation and maintenance charges, all the interest, sinking fund or principal payments on debentures, and additions to plant to the extent of five per cent. of the capital in lieu of depreciation. This percentage is based on the usual type of construction; special features, such as concrete poles or underground work, or an unusually large amount of overhead work, would require a lower or higher rate.

A study of Statement "B" will show that in but two instances has the revenue been insufficient to meet all operating, maintenance and fixed charges, and in these cases steps have been taken to correct the peculiar local conditions responsible for the small loss. In almost every case the surplus is much more than sufficient to provide for full depreciation.

Statement "C" shows in detail the revenues and expenses which are summarized in statement "B" comparative with the operation in other municipalities of the same size for 1913 and 1914. In comparing the cost of power purchased, the varying price per horsepower paid must be taken into consideration.

Statement "D," showing the revenue for the years 1912, 1913 and 1914, and the number of customers in each class of service at the end of each year, is intended to illustrate the rapid expansion of the service in the municipalities where the operation covers a period of two years or longer.

Statement "E" is prepared to show the approximate installation and annual cost per lamp and per capita of the street lighting service in cities, towns and incorporated villages where Hydro service has been installed. The figures are for the calendar year ending December 31st, 1914.

Statement "F" will show the actual cost per kw-hr. in domestic and commercial service, including all floor space and installed capacity loadings, and, where it has been possible to compute it, what this service would cost at the rates in effect prior to the introduction of Hydro, and the hypothetical saving to light users only.

Statements "G" and "H" show comparatively the cost of power to the municipalities, the selling rates for power and light in 1912, 1913 and 1914 and the recommended rates for 1915.

The accounts of 69 municipalities have been consolidated into one balance sheet on the standard form as at December 31st, 1914, as follows:—

Assets:			
Lands and Buildings	$791,732 20		
Sub-Station Equipment	1,476,087 84		
Distribution System, Overhead	3,422,763 93		
" " Underground	807,153 53		
Line Transformers	787,613 52		
Meters	1,172,475 11		
Street Lighting Equipment, Regular	1,071,255 37		
" " " Ornamental	270,386 55		
Miscel. Equipment and Const. Expense	2,062,035 90		
Steam or Hydraulic Plant	420,108 33		
Old Plant	478,881 56		
Other Miscellaneous Assets	140,631 56		
Total Plant		$12,901,125 40	
Bank and Cash Balance	$422,350 12		
Inventories	561,873 08		
Accounts Receivable	615,226 76		
Sinking Fund	625,217 03		
Other Assets	123,410 97		
Total Liquid Assets		$2,348,077 96	
Total Assets			$15,249,203 36
Liabilities:			
Debenture Balance	$10,678,078 36		
Accounts Payable	1,682,150 29		
Bank Overdraft	228,622 50		
Other Liabilities	113,838 66		
Total Liabilities		$12,702,689 81	
Reserves:			
Debentures Paid	$320,129 10		
Sinking Fund Reserve	625,217 03		
Depreciation Reserve	850,618 07		
Surplus	750,549 35		
Total Reserves		$2,546,513 55	
Total Liabilities and Reserves			$15,249,203 36

The operation of the municipalities consolidated into one report shows the following results:

	Dec 31st, 1912.	Dec. 31st, 1913.	Dec. 31st, 1914.
Number of Municipalities included in report	28	45	69
Operating and maintenance expense	$1,086,135 00	$1,516,613 32	$2,012,754 07
Debenture charges and interest	291,033 00	525,054 44	661,949 23
Total Annual Expense	$1,377,168 00	$2,041,667 76	$2,674,703 30
Total Revenue	1,617.674 00	2,617,439 51	3,433,936 16
Surplus for year	$240,506 00	$575,771 75	$759,232 86
Depreciation Charge	124,992 47	262,675 21	357,883 31
Surplus less Depreciation Charge	$159,219 06	$313,096 54	$401,349 55
Total Assets	$6,349,711 00	$11,977,175 85	$15,249,203 36
Net Debenture Balance and other debt	5,822,156 00	10,468,351 78	12,702,689 81
Percentage of Net Debt to Total Assets	92.5%	87.2%	83.0%
Total plant value	.....	$9,196,483 00	$12,901,125 40
Accumulated surplus invested in plant extension	$284,211 53	$859,983 28	$1,601,167 42
Accumulated depreciation reserve	240,229 29	502,904 48	850,618 07
Surplus from operation	$43,982 26	$357,078 80	$750,549 35
Estimated saving to light users only during year	.....	1,576,500 00	1,694,300 00
Number of consumers, light	33,568	63,157	93,179
" " " power	1,399	2,532	3,565
Total number of consumers	34,967	65,689	96,744

	Dom. Lt.	Com'l. Lt.
Highest cost per kw-hr. in 1914	10.9	9.4
Lowest " " "	3.7	1.8
Average " " "	4.8	3.9
" " " prior to Hydro	9.4	9.5

The outstanding features of this report are that while the municipalities have invested in distributing plants to the extent of $15,249,203.36, carrying annual fixed charges for interest and sinking fund of $661,949.23, the surplus from operation in 63 municipalities for periods of from one month to three years amount to $1,601,167.42 in addition to the reduction in debenture debt due to sinking fund and principal payments.

Deducting from this profit a depreciation charge to provide for deferred maintenance due to general decay and obsolescence amounting to $850,618.07 there is still a surplus of $750,549.35, or over ten per cent. of the total revenue of the three years. In other words, the total revenue has been over ten per cent. greater than the cost of the service, including depreciation, although the selling rates in most municipalities have been reduced from time to time.

These statements show not only the status of the utility in each municipality, but of all the municipalities in the Niagara, Severn, Wasdell's Falls, St. Lawrence, Ottawa and Port Arthur systems consolidated into one unit.

The result is of particular interest and value, as it is the final answer of the municipalities to their experiment in the co-operative transmission and municipal distribution of Hydro power:—

STATE

Comparative Condensed Balance Sheets of Electric Departments

Municipality	Toronto		Hamilton	
Population	445,575		100,808	
——	1913	1914	1913	1914
ASSETS	$ c.	$ c.	$ c.	$ c.
Lands and Buildings	320,492 71	363,945 40	30,677 72	58,738 46
Sub-Station Equipment	599,258 17	740,980 33	18,172 86	80,956 00
Distribution System, Overhead	1,059,994 96	1,184,748 21	224,981 25	268,751 26
" " Underground	547,540 78	603,500 90	25,808,65	126,692 41
Line Transformers	260,317 73	328,203 35	54.663 41	65,791 02
Meters	372,030 86	490.590 08	73,100 14	104,274 72
Street Light Equipment, Regular	643,944 32	677,878 41	31,512 39	89,943 14
" " Ornamental	.....	.....	.....	67,489 03
Miscel. Equip. and Construction Exp.	639,134 71	737,276 56	76,636 36	116,390 57
Steam or Hydraulic Plant	933,068 06	951,765 56	.....	.....
Old Plant	106,456 69	104,486 15	2,000 00	2,000 00
Total Plant	5,482,338 99	6,183,374 95	537,552 78	981,026 61
Bank and Cash Balance	257,998 78	263,840 21	.....	.....
Inventories	231,511 51	409,177 65	40,991 63	33,685 18
Accounts Receivable	351,748 12	379,768 60	28,063 12	51,137 23
Sinking Fund	274,040 00	369,219 16	18,531 87	28,369 94
Other Assets	73,850 58	76,364 37	.....	1,318 58
Total Assets	6,671,487 98	7,681,744 94	625,139 40	1,095,537 54
LIABILITIES AND RESERVES				
Liabilities				
Debenture Balance	4,950,000 00	5,650.000 00	505,000 00	840,000 00
Accounts Payable	1,295,417 41	1,162,358 98	31,039 24	77,066 26
Bank Overdraft	.....	.....	54,421 14	73,508 89
Other Liabilities	12,121 01	85,143 59	5,621 27	18,093 94
Total Liabilities	6,257,538 42	6,897,502 48	596,081 65	1,008,669 09
Reserves				
Debentures Paid	.....	.....	.....	.....
Sinking Fund Reserve	274,040 00	369,219 16	18,531 87	28,369 94
Depreciation Reserve	115,236 80	252,248 48	9,031 35	30,085 01
Surplus	24,672 76	162,774 82	1,494 53	28,413 50
Total Liabilities and Reserves	6,671,487 98	7.681,744 94	625,139 40	1,095,537 54
Percentage of Net Debt to Total Assets	93.8	90.0	94.8	91.8

MENT "A"

of Hydro Municipalities as at December 31st, 1913 and 1914

Ottawa 100,180		London 55,026		Brantford 26,454	Windsor 22,080	Peterboro' 20,150
1913	1914	1913	1914	1914	1914	1914
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
69,958 53	83,081 13	34,784 12	66,912 37	6,546 22	8,397 66	.....
75,277 83	100,341 34	75,742 82	124,036 63	12,048 42	9,922 45	.....
234,128 27	293,583 97	229,253 51	253,981 24	98,680 18	39,081 31	364 94
70,812 38	70,254 11	352 43	352 43	.....	.....	.....
72,016 15	79,889 90	24,594 84	29,823 63	14,396 85	8,964 30	847 26
76,947 05	92,352 76	77,857 33	98,581 61	15,209 76	4,842 11	1,924 37
52,081 44	52,598 02	34,661 57	35,664 34	15,167 68	7,458 57	5 04
29,847 11	29,957 84	.....	.....	36,410 50	67,661 39	27,015 99
22,053 88	24,695 29	38,046 18	44,878 01	17,569 90	31,352 18	5,049 16
.....	.....	.....	.....	.....	.....	.....
5,000 00	5,097 37	.....	.....	.....	.....	100,000 00
708,122 64	831,851 73	515,292 80	654,230 26	216,029 51	177,679 97	135,206 76
102,134 14	30,443 65	11,413 65	8,285 53	55 78	17,187 01	2,879 81
5,233 72	7,421 55	28,479 87	28,124 06	709 27	3,739 81	.....
35,000 00	20,000 00	46,996 49	40,611 55	1,756 78	2,047 85	5,817 23
66,619 57	83,026 78	12,791 47	20,932 37	3,862 00	.....	2,139 61
.....	.....	.....	.....	.....	507 13	3 49
917,110 07	972,743 71	614,974 28	752,183 77	222,413 34	201,161 77	146,046 90
650,000 00	650,000 00	460,934 75	456,026 44	152,500 00	201,161 77	120,000 00
18,397 10	3,324 20	65,164 91	127,639 90	.....	.....	11,905 40
.....	.....	.....	.....	57,877 24	.....	7,015 99
.....	.....	1,409 50	864 00	.....	.....	4 98
668,397 10	653,324 20	527,509 16	584,530 34	210,377 24	201,161 77	138,926 37
.....	.....	20,965 25	25,873 56	.....	.....	.....
66,619 57	83,026 78	12,791 47	20,932 37	3,862 00	.....	2,139 61
156,728 30	189,378 30	38,980 13	66,568 52	6,000 00	.....	.....
25,365 10	47,014 43	14,728 27	54,278 98	2,174 10	.....	4,980 92
917,110 07	972,743 71	614,974 28	752,183 77	222,413 34	201,161 77	146,046 90
72.9	67.2	85.8	77.7	93.8	100.0	95.1

STATEMENT

Comparative Condensed Balance Sheets of Electric Departments

Municipality	Berlin		Port Arthur	
Population	18,338		18,025	
——	1913	1914	1913	1914
	$ c.	$ c.	$ c.	$ c.
ASSETS				
Lands and Buildings	21,344 64	29,512 86	.....	.....
Sub-Station Equipment	54,847 73	53,952 83	219 89	19,857 44
Distribution System, Overhead	69,688 70	78,373 58	118,326 45	194,657 61
" " Underground	.....	6,353 68	.....	.....
Line Transformers	24,281 17	26,593 35	5,644 05	10,177 83
Meters	25,495 55	33,361 91	14,869 90	41,521 38
Street Light Equipment, Regular	18,004 26	19,532 87	21,639 51	27,000 00
" " Ornamental	.....	.....	.....	.....
Miscel. Equip. and Construction Ex	5,953 74	6,229 29	3,710 05	8,367 20
Steam or Hydraulic Plant	.....	.....	381,432 72	357,210 24
Old Plant	58,990 80	56,873 81	.....	.....
Total Plant	278,206 59	320,784 18	545,902 57	658,791 70
Bank and Cash Balance	3,767 13	15,474 46	.....	.....
Inventories	4,447 31	4,632 36	.....	172 73
Accounts Receivable	6,584 65	11,219 74	.....	19,325 03
Sinking Fund	.....	.....	.....	23,390 23
Other Assets	40,893 65	6,867 25	.....	148 00
Total Assets	333,899 31	358,977 99	.....	701,827 69
LIABILITIES AND RESERVES				
Liabilities				
Debenture Balance	257,659 13	250,817 14	478,553 57	533,068 30
Accounts Payable	8,384 27	9,332 53	.....	9,773 73
Bank Overdraft	.....	.....	.....	3,314 93
Other Liabilities	.....	.....	.....	6,956 46
Total Liabilities	266,043 40	260,149 67	.....	553,113 42
Reserves				
Debentures Paid	42,490 87	49,332 86	.....	48,431 70
Sinking Fund Reserve	.....	.....	.....	23,390 23
Depreciation Reserve	10,980 79	23,864 84	.....	16,469 79
Surplus	14,384 25	25,630 62	.....	60,422 55
Total Liabilities and Reserves	333,899 31	358,977 99	.....	701,827 69
Percentage of Net Debt to Total Assets	79.7	72.5	87.7	78.8

"A"—Continued

of Hydro Municipalities as at December 31st, 1913 and 1914

St. Thomas 16,794		Stratford 16,425		Guelph 16,319		St. Catharines 16,186
1913	1914	1913	1914	1913	1914	1914
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
9,676 56	9,709 11	16,837 50	16,950 60	17,346 11	19,298 41	1,147 42
28,426 76	33,857 96	20,779 41	21,213 33	39,598 02	40,360 20	3,531 72
56,575 75	62,139 41	74,403 84	81,559 81	45,407 80	50,822 17	49,752 84
.....	.....	.....	.....	.....	.....	.....
11,076 90	12,116 30	12,897 73	14,441 43	6,355 98	8,255 04	8,364 86
14,930 85	21,617 04	13,526 22	19,347 05	15,977 58	19,478 59	8,546 05
11,553 31	11,797 57	5,971 43	5,971 43	22,254 45	22,852 99	2,584 82
.....	.....	.....	1,976 04	.....	.....	.....
3,229 05	5,622 48	7,828 37	7,848 12	6,513 12	6,655 21	8,689 91
.....	.....	.....	.....	a 35,734 76	a 36,145 41	.....
7,794 75	5,213 84	11,187 00	11,187 00	.....	.....	30,008 75
143,263 93	162,073 71	163,431 50	180,494 81	189,187 82	208,868 02	112,626 37
21,967 29	9,466 39	350 12	7,502 30	3,178 10	14,308 61	25 00
.....	794 80	1,537 94	886 78	11,938 78	11,952 32	4,436 30
10,924 35	8,991 16	6,933 63	2,982 86	8,770 52	9,764 63	1,349 57
.....	.....	6,806 17	10,091 12	.....	12,993 99	2,068 29
.....	17,420 42	263 82	2,083 82	396 50	.....	.....
176,155 57	198,736 48	179,323 18	204,041 69	213,471 72	252,887 57	120,505 53
94,039 74	90,833 51	128,470 00	144,090 00	119,084 02	127,417 09	.....
5,958 17	8,117 82	11,662 22	2,775 18	3,272 91	4,465 55	116,521 26
.....	.....	430 00	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
99,997 91	98,951 33	140,562 22	146,865 18	122,356 93	131,882 64	116,521 26
16,960 26	20,166 49	15,330 00	19,710 00	25,865 97	17,582 90	.....
.....	.....	6,806 17	10,091 12	.....	12,993 99	2,068 29
15,818 44	47,927 04	12,493 42	17,124 92	37,846 12	48,046 12	850 00
43,378 96	31,691 62	4,131 37	10,250 47	27,402 70	42,381 92	1,065 98
176,155 57	198,736 48	179,323 18	204,041 69	213,471 72	252,887 57	120,505 53
56.8	49.8	78.2	72.0	57.3	52.1	96.7

STATEMENT

Comparative Condensed Balance Sheets of Electric Departments

Municipality	Galt		Woodstock	
Population	11,932		10,154	
——	1913	1914	1913	1914
ASSETS	$ c.	$ c.	$ c.	$ c.
Lands and Buildings	10,230 85	11,722 68	7,331 95	7,331 95
Sub-Station Equipment	15,145 48	20,513 66	26,870 13	27,685 13
Distribution System, Overhead	77,483 93	91,467 50	28,907 57	34,334 28
" " Underground	.....	.....	.....	.....
Line Transformers	14,831 91	16,296 09	15,638 52	18,253 32
Meters	16,826 68	24,437 73	12,009 27	15,392 17
Street Light Equipment, Regular	7,694 03	7,982 73	10,047 72	10,233 97
" " Ornamental	32,918 23	39,875 76	.....	.....
Miscel. Equip. and Construction Exp.	5,993 11	8,528 63	.....	.....
Steam or Hydraulic Plant	.....	.....	15,743 62	15,743 62
Old Plant	.....	.....	15,805 26	15,835 26
Total Plant	181,124 22	220,824 78	132,354 04	144,809 70
Bank and Cash Balance	.....	.....	9,534 36	7,391 38
Inventories	636 35	3,456 49	191 65	705 35
Accounts Receivable	.....	.....	.....	.....
Sinking Fund	10,582 92	14,902 70	28,858 51	32,536 50
Other Assets	.....	.....	.....	.....
Total Assets	192,343 49	239,183 97	170,938 56	185,442 93
LIABILITIES AND RESERVES				
Liabilities				
Debenture Balance	136,000 00	136,000 00	107,385 63	107,385 63
Accounts Payable	.....	.....	.....	.....
Bank Overdraft	25,667 34	48,762 31	.....	.....
Other Liabilities	.....	.....	.....	.....
Total Liabilities	161,667 34	184,762 31	107,385 63	107,385 63
Reserves				
Debentures Paid	.....	.....	.....	.....
Sinking Fund Reserve	10,582 92	14,902 70	28,858 51	32,536 50
Depreciation Reserve	14,900 00	25,500 00	9,442 40	15,892 40
Surplus	5,193 23	14,018 96	25,252 02	29,628 40
Total Liabilities and Reserves	192,343 49	239,183 97	170,938 56	185,442 93
Percentage of Net Debt to Total Assets	84.1	77.2	62.8	57.9

"A"—Continued

of Hydro Municipalities as at December 1913 and 1914

Barrie 7,215		Welland 7,208		Collingwood 6,646		Midland 6,253	
1913	1914	1913	1914	1913	1914	1913	1914
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
12,034 61	12,034 61	5,156 40	6,172 68	4,343 60	4,343 60	4,780 69	4,780 69
20,535 59	20,536 29	8,017 13	8,981 25	42 80	4,352 80	8,407 78	8,407 78
16,107 32	18,420 33	35,569 34	40,830 86	23,438 67	23,881 01	28,904 82	30,697 06
.....	.....	.....	.....	.....	.....	.....	.....
3,032 71	3,238 49	9,517 57	11,191 63	4,697 25	4,814 05	6,661 19	7,573 63
13,400 87	14,119 96	5,264 74	8,246 18	7,524 05	8,292 84	9,416 34	10,495 06
1,823 96	3,179 97	1,764 27	1,974 99	2,400 03	2,404 29	3,421 85	3,421 85
.....	.....	.....	.....	.....	.....	.....	.....
757 49	757 49	5,655 38	6,492 54	4,631 89	5,043 39	3,500 58	3,500 58
31,212 48	31,062 48	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	5,455 75	5,127 75	7,382 84	7,057 84
98,905 03	103,349 62	70,944 83	83,890 13	52,534 04	58,259 73	72,476 09	75,934 49
3,751 54	3,721 03	131 28	535 18	5,821 88	882 84	6,707 06	7,439 46
2,877 83	3,441 72	979 11	720 12	939 68	429 65	90 06	147 23
4,124 88	5,426 07	209 49	2,535 18	1,918 23	6,906 21	.....	2,500 93
.....	.....	.....	1,961 30	.....	.....	.....	.....
.....	.....	1,668 73	.....	.....	.....	.....	.....
109,659 28	115,938 44	73,933 44	89,641 91	61,213 83	66,478 43	79,273 21	86,022 11
55,755 06	52,170 97	.....	65,000 00	37,950 42	35,362 35	42,997 23	40,788 82
978 70	1,260 94	71,301 37	22,232 78	5,431 47	4,165 85	578 64	600 00
.....	.....	704 72	.....	.....	.....	.....	.....
.....	4 22	1,927 35	.....	4 64	.....	.....	.....
56,733 76	53,436 13	73,933 44	87,232 78	43,386 53	39,528 20	43,575 87	41,388 82
31,244 94	34,829 03	.....	.....	1,459 87	4,047 94	10,752 77	12,961 18
.....	.....	.....	1,961 30	.....	.....	.....	.....
3,350 00	6,850 00	.....	.....	2,390 00	4,790 00	5,800 00	9,000 00
18,330 58	20,823 28	.....	447 83	13,977 43	18,112 29	19,144 57	22,672 11
109,659 28	115,938 44	73,933 44	89,641 91	61,213 83	66,478 43	79,273 21	86,022 11
51.9	46.1	100.	97.3	70.9	59.5	55.	48.1

STATEMENT

Comparative Condensed Balance Sheets of Electric Departments

Municipality	Ingersoll		Preston	
Population	5,149		4,923	
——	1913	1914	1913	1914
ASSETS	$ c.	$ c.	$ c.	$ c.
Lands and Buildings	3,057 57	3,057 57	.....	.....
Sub-Station Equipment	10,232 56	10,232 56	12,076 92	13,556 37
Distribution System, Overhead	28,350 21	30,046 34	27,687 13	32,190 73
" " Underground	.....	.....	.....	.....
Line Transformers	6,288 62	7,734 50	11,345 64	11,539 00
Meters	7,039 66	9,952 66	8,890 62	9,939 77
Street Light Equipment, Regular	2,273 84	2,336 01	1,903 86	1,909 53
" " Ornamental	.....	.....	.....	.....
Miscel. Equip. and Construction Exp.	8,253 30	8,253 30	4,708 43	4,910 22
Steam or Hydraulic Plant	.....	.....	.....	.....
Old Plant	22,368 53	22,368 53	24,007 28	23,549 22
Total Plant	87,864 29	93,981 47	90,619 88	97,594 84
Bank and Cash Balance	.....	.....	.....	.....
Inventories	805 63	1,305 44	.....	1,330 03
Accounts Receivable	10,358 54	5,881 07	6,435 01	5,938 37
Sinking Fund	4,664 10	6,498 21	.....	.....
Other Assets	.....	.....	.....	.....
Total Assets	103,692 56	107,666 19	97,054 89	104,863 24
LIABILITIES AND RESERVES				
Liabilities				
Debenture Balance	79,800 00	79,800 00	55,986 64	71,055 09
Accounts Payable	945 62	985 50	1,626 88	1,791 90
Bank Overdraft	10,909 10	5,452 88	150 47	5,890 54
Other Liabilities	.....	.....	21,170 65	.....
Total Liabilities	91,654 72	86,238 38	78,934 64	78,737 53
Reserves				
Debentures Paid	.....	.....	3,878 87	6,810 43
Sinking Fund Reserve	4,664 10	6,498 21	.....	.....
Depreciation Reserve	2,862 00	6,030 00	6,348 34	9,748 34
Surplus	4,511 74	8,899 60	7,893 04	9,566 93
Total Liabilities and Reserves	103,692 56	107,666 19	97,054 89	104,863 24
Percentage of Net Debt to Total Assets	88.4	80.1	81.3	75.1

"A"—Continued

of Hydro Municipalities as at December 31st, 1913 and 1914

Dundas		Goderich		Waterloo		Walkerville	Paris
4,866		4,811		4,737		4,721	4,216
1913	1914	1913	1914	1913	1914	1914	1914
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
.....	137 92	12,660 04	12,874 90	4,646 71	4,683 07	14,291 69	626 26
2,060 66	2,174 12	.....	5,067 27	11,600 73	17,955 85	6,567 50	10,639 96
32,550 60	36,245 57	21,194 25	23,277 27	29,977 46	33,814 17	4,945 46	21,633 21
.....	.....	.....	.....	.....	.....	.....	.....
5,436 92	6,338 53	4,769 29	6,281 16	6,766 62	7,033 53	349 41	4,142 52
5,476 70	6,971 99	9,340 67	10,292 45	6,030 43	8,342 63	2,814 80	5,071 02
502 81	1,708 19	4,376 73	4,442 79	4,095 19	5,133 01	29,538 36	2,112 05
.....	.....	.....	.....	.....	.....	.....	.....
3,522 21	5,509 47	1,284 53	1,967 26	1,389 00	1,181 50	8,084 38	210 04
.....	.....	.....	.....	2,483 64	2,483 64	.....	.....
.....	2,110 38	10,005 00	10,005 00	10,131 25	10,082 50	32,851 14	50,424 72
49,549 90	61,196 17	63,630 51	74,208 10	77,121 03	90,709 90	99,442 74	94,889 78
.....	.....	3,318 63	1,386 34	.....	.....	50 00	1,797 92
3,467 33	1,159 87	530 00	393 79	971 59	1,068 69	24,027 57	98 25
.....	1,855 86	565 28	1,463 38	2,454 88	3,342 01	.....	.....
.....	.....	2,535 60	2,651 50	1,152 00	1,440 00	.....	1,946 17
.....	.....	4,675 44	.....	164 19	2,203 90	3,728 50	210 45
53,017 23	64,211 90	75,255 46	80,103 11	81,863 69	98,764 50	127,248 81	98,942 57
19,629 72	51,728 16	56,088 05	54,542 69	54,659 14	63,943 13	57,304 04	64,919 92
.....	.....	.....	13	945 70	841 87	65,835 40	4,996 40
28,425 90	3,316 39	.....	.....	3,360 60	1,182 27	1,455 13	.....
.....	.....	158 39	.....	.....	.....	649 13	.....
48,055 62	55,044 55	56,246 44	54,542 82	58,965 44	65,967 27	125,243 70	69,916 32
370 28	1,271 84	.....	1,545 36	1,340 86	2,056 87	954 96	27,080 08
.....	.....	2,535 60	2,651 50	1,152 00	1,440 00	.....	1,946 17
1,508 00	4,183 00	.....	2,920 00	7,950 00	11,450 00	.....	.....
3,083 33	3,712 51	16,473 42	18,443 43	12,455 39	17,850 36	1,050 15	.....
53,017 23	64,211 90	75,255 46	80,103 11	81,863 69	98,764 50	127,248 81	98,942 57
90.6	85.7	74.7	68.1	72.0	66.8	98.4	73.7

STATEMENT

Comparative Condensed Balance Sheets of Electric Departments

Municipality	Penetanguishene		St. Mary's	
Population	3,963		3,783	
——	1913	1914	1913	1914
ASSETS	$ c.	$ c.	$ c.	$ c.
Lands and Buildings	2,151 00	2,151 00	13,674 27	13,674 27
Sub-Station Equipment	3,507 71	3,507 71	12,909 54	12,914 54
Distribution System, Overhead	22,801 32	23,287 26	17,621 88	18,883 72
" " Underground	.....	.....	.....	.....
Line Transformers	3,343 58	3,524 17	9,877 87	9,918 40
Meters	4,400 93	5,026 26	6,582 18	8,720 68
Street Light Equipment, Regular	1,607 91	1,721 40	2,148 40	2,667 79
" " Ornamental	.....	.....	.....	.....
Miscel. Equip. and Construction Exp	278 93	278 93	1,601,75	1,601 75
Steam or Hydraulic Plant	.....	.....	.....	.....
Old Plant	2,940 00	2,939 00	.....	.....
Total Plant	41,031 38	42,435 73	64,415 89	68,381 15
Bank and Cash Balance	.....	.....	7,427 19	494 37
Inventories	411 43	834 46	429 95	716 75
Accounts Receivable	.....	2,650 00	1,715 00	1,685 00
Sinking Fund	.....	.....	503 73	1,049 31
Other Assets	.....	.....	.....	8,550 00
Total Assets	41,442 81	45,920 19	74,491 76	80,876 58
LIABILITIES AND RESERVES				
Liabilities				
Debenture Balance	29,490 67	28,858 61	44,787 30	44,900 97
Accounts Payable	.....	.....	9,476 77	5,810 72
Bank Overdraft	1,892 14	1,836 36	.....	.....
Other Liabilities	.....	.....	.....	.....
Total Liabilities	31,382 81	30,694 97	54,264 07	50,711 69
Reserves				
Debentures Paid	1,509 33	2,141 39	16,170 42	18,346 05
Sinking Fund Reserve	.....	.....	503 73	1,049 31
Depreciation Reserve	3,485 00	5,445 00	.....	3,340 00
Surplus	5,065 67	7,638 83	3,553 54	7,429 53
Total Liabilities and Reserves	41,442 81	45,920 19	74,491 76	80,876 58
Percentage of Net Debt to Total Assets	75.7	66.8	72.8	62.7

"A"—Continued

of Hydro Municipalities as at December 31st, 1913 and 1914

Brampton		Tillsonburg		Hespeler		Prescott
3,344		3,155		3,086		2,877
1913	1914	1913	1914	1913	1914	1914
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
3,808 08	3,808 08	1,896 47	1,974 27	3,499 23	3,499 23	2,743 35
5,181 32	5,183 67	6,818 47	6,818 47	8,500 83	8,506 64	.....
30,628 36	31,669 90	17,522 44	17,736 20	5,702 58	6,244 06	22,956 43
.....	.....	.....	.....	.....	.....	.....
8,779 81	9,323 69	4,041 90	4,041 90	4,025 26	3,971 30	5,028 36
7,998 00	8,580 90	3,613 36	4,294 27	3,594 78	4,111 93	7,151 98
1,714 47	1,785 82	1,762 50	1,762 50	718 95	753 50	1,218 43
.....	.....	.....	.....	.....	.....	.....
2,895 62	2,895 62	918 83	918 83	93 08	93,08	731 22
.....	.....	.....	.....	.....	.....	12,108 35
15,000 00	15,000 00	.....	.....	3,000 00	3,000 00	.....
76,005 66	78,247 68	36,573 97	37,546 44	29,134 71	30,179 74	51,938 12
.....	1,529 90	414 95	2,383 67	.....	1,113 29	247 58
372 34	459 64	234 43	978 42	.....	.....	.....
.....	.....	3,668 22	3,349 04	529 90	549 71	603 29
.....	.....	.....	.....	.....	.....	.....
.....	.....	1,000 00	.....	2,905 90	2,594 35	.....
76,378 00	80,237 22	41,891 57	44,257 57	32,570 51	34,437 09	52,788 99
66,593 77	64,896 56	34,971 49	33,907 07	18,108 30	28,452 44	14,008 13
.....	.....	1,600 00	600 00	.....	516 58	5,711 54
1,200 08	.....	.....	.....	12,000 00	.....	.....
.....	.....	.....	.....	.....	.....	280 00
67,793 85	64,896 56	36,571 49	34,507 07	30,108 30	28,969 02	19,999 67
2,456 87	4,154 08	1,028 51	2,092 93	2,462 21	4,118 07	771 21
.....	.....	.....	.....	.....	.....	.....
5,200 00	8,200 00	2,606 50	4,436 50	.....	1,350 00	1,950 00
927 28	2,986 58	1,685 07	3,221 07	.....	.....	30,068 11
76,378 00	80,237 22	41,891 57	44,257 57	32,570 51	34,437 09	52,788 99
88.8	80.9	87.3	78.0	92.1	84.0	37.9

STATEMENT

Comparative Condensed Balance Sheets of Electric Departments

Municipality	Weston		Elmira	Clinton
Population	2,307		2,134	2,112
——	1913	1914	1914	1914
ASSETS	$ c.	$ c.	$ c.	$ c.
Lands and Buildings	3,230 94	3,230 94	.....	.....
Sub-Station Equipment	4,985 23	4,985 23	.....	4,144 87
Distribution System, Overhead	9,723 63	11,349 65	8,793 62	10,302 76
" " Underground	.....	.....	.....	.....
Line Transformers	4,158 10	4,334 55	2,112 02	1,937 64
Meters	2,779 93	3,221 68	2,214 61	2,649 27
Street Light Equipment, Regular	1,361 12	1,893 15	570 67	206 41
" " Ornamental	.....	.....	.....	.....
Miscel. Equip. and Construction Exp.	2,896 21	2,959 67	2,076 74	3,293 18
Steam or Hydraulic Plant	.....	.....	.....	.....
Old Plant	.....	.....	2,296 27	13,491 00
Total Plant	29,135 16	31,974 87	18,063 93	36,025 13
Bank and Cash Balance	91 86	.....	3,542 98	.....
Inventories	86 70	152 16	131 83	407 00
Accounts Receivable	632 07	595 33	.....	585 46
Sinking Fund	.....	.....	.....	792 40
Other Assets	.....	805 13	.....	70 37
Total Assets	29,945 79	33,527 49	21,738 74	37,880 36
LIABILITIES AND RESERVES				
Liabilities				
Debenture Balance	18,626 50	17,945 62	19,747 02	30,000 00
Accounts Payable	543 78	811 38	.....	6,530 26
Bank Overdraft	.....	172 02	.....	557 70
Other Liabilities	.....	1,642 76	.....	.....
Total Liabilities	19,170 28	20,571 78	19,747 02	37,087 96
Reserves				
Debentures Paid	1,341 38	2,022 26	252 98	.....
Sinking Fund Reserve	.....	.....	.....	792 40
Depreciation Reserve	2,650 00	4,100 00	650 00	.....
Surplus	6,784 13	6,833 45	1,088 74	.....
Total Liabilities and Reserves	29,945 79	33,527 49	21,738 74	37,880 36
Percentage of Net Debt to Total Assets	64.0	61.7	90.8	97.9

"A"—Continued

of Hydro Municipalities as at December 31st, 1913 and 1914

Milton 2,053		Georgetown 1,965		Seaforth 1,901		Mimico 1,758	
1913	1914	1913	1914	1913	1914	1913	1914
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
.....	.....	12 00	12 00	1,194 00	1,194 00	98 30	98 30
4,940 19	5,550 19	.....	.....	6,031 75	6,031 75	.....	.....
8,758 21	9,144 70	9,464 24	11,080 32	13,325 50	14,166 06	10,563 83	14,785 46
.....	.....	.....	.....	.....	.....	.....	.....
872 43	1,462 85	1,978 76	4,284 36	2,589 49	2,733 80	965 88	1,065 00
2,291 32	2,901 68	2,235 98	2,951 43	2,854 15	3,351 87	2,740 79	3,956 64
935 43	935 43	903 94	903 94	797 34	797 34	543 90	655 46
.....	.....	.....	.....	.....	.....	.....	.....
2,061 49	2,476 90	669 51	939 53	310 98	355 98	694 38	1,103 49
.....	.....	.....	.....	.....	.....	.....	.....
4,712 98	4,712 98	2,750 05	2,209 80	.....	.....	.....	.....
24,572 05	27,184 73	18,014 48	22,381 38	27,103 21	28,630 80	15,607 08	21,664 35
292 64	1,927 78	2,951 30	1,750 51	745 65	962 98	398 13	271 50
873 84	813 65	341 66	478 75	1,005 18	1,453 45	375 37	323 01
2,518 99	4,007 26	.....	82 50	99 81	46 34	82 05	161 82
.....	.....	.....	.....	909 33	1,391 45	.....	.....
396 01	.....	.....	.....	.....	.....	.....	.....
28,653 53	33,933 42	21,307 44	24,693 14	29,863 18	32,485 02	16,462 63	22,420 68
23,713 76	22,510 00	20,000 00	19,747 02	21,000 00	25,000 00	14,685 80	14,322 69
798 00	.....	.....	.....	4,000 00	.....	211 25	4,251 38
.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....
24,511 76	22,510 00	20,000 00	19,747 02	25,000 00	25,000 00	14,897 05	18,574 07
999 22	2,202 98	.....	252 98	.....	.....	314 20	677 31
.....	.....	.....	.....	909 33	1,391 45	.....	.....
900 00	2,150 00	300 00	1,150 00	1,300 00	2,700 00	740 00	1,660 00
2,242 55	7,070 44	1,007 44	3,543 14	2,653 85	3,393 57	511 38	1,509 30
28,653 53	33,933 42	21,307 44	24,693 14	29,863 18	32,485 02	16,462 63	22,420 68
85.5	66.0	93.9	80.0	83.7	77.0	90.5	82.8

STATEMENT

Comparative Condensed Balance Sheets of Electric Departments

Municipality	Mitchell		New Hamburg	
Population	1,746		1,735	
——	1913	1914	1913	1914
ASSETS	$ c.	$ c.	$ c.	$ c.
Lands and Buildings	4,217 24	4,550 44	2,257 59	2,257 59
Sub-Station Equipment	9,034 86	9,034 86	1,054 90	1,083 10
Distribution System, Overhead	5,981 19	6,756 16	7,865 33	8,039 43
" " Underground	.....	.....	.....	.....
Line Transformers	823 82	883 82	2,664 75	2,664 75
Meters	1,518 97	2,193 62	2,578 62	2,830 27
Street Light Equipment, Regular	461 41	823 16	1,077 93	1,077 93
" " Ornamental	.....	.....	.....	.....
Miscel. Equip. and Construction Exp	.....	.....	903 53	958 48
Steam or Hydraulic Plant	1,500 00	1,500 00	.....	.....
Old Plant	.....	.....	5,324 56	5,324 56
Total Plant	23,537 49	25,742 06	23,727 21	24,236 11
Bank and Cash Balance	.....	324 77	.....	.....
Inventories	343 59	531 39	3,175 87	4,300 42
Accounts Receivable	1,650 64	1,560 00	1,159 92	1,140 54
Sinking Fund	.....	.....	.....	.....
Other Assets	.....	.....	.....	.....
Total Assets	25,531 72	28,158 22	28,063 00	29,677 07
LIABILITIES AND RESERVES				
Liabilities				
Debenture Balance	11,684 02	10,094 81	17,151 94	16,838 31
Accounts Payable	.....	359 21	462 00	288 00
Bank Overdraft	732 17	.....	3,234 39	2,228 53
Other Liabilities	.....	.....	.....	.....
Total Liabilities	12,416 19	10,454 02	20,848 33	19,354 84
Reserves				
Debentures Paid	3,167 76	4,756 97	577 14	890 77
Sinking Fund Reserve	.....	.....	.....	.....
Depreciation Reserve	2,177 21	3,377 21	2,045 00	2,945 00
Surplus	7,770 56	9,570 02	4,592 53	6,486 46
Total Liabilities and Reserves	25,531 72	28,158 22	28,063 00	29,677 07
Percentage of Net Debt to Total Assets	48.7	37.1	74.3	65.2

"A"—Continued

of Hydro Municipalities as at December 31st, 1913 and 1914

Acton		Fergus	Norwich		Elora	Pt. Dalhousie	
1,634		1,587	1,185		1,225	1,281	
1913	1914	1914	1913	1914	1914	1913	1914
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
1,500 00	1,500 00	.....	655 00	829 17	.....	.....	.....
597 62	597 62	.....	.....	.....	.....	.....	.....
4,515 62	4,763 72	7,469 45	6,373 65	6,373 65	6,138 53	2,191 89	3,023 09
.....	.....	.....	.....	.....	.....	.....	.....
1,310 00	1,535 50	486 65	828 37	828 37	803 21	1,732 75	1,732 75
1,347 00	1,893 40	1,742 13	1,717 47	2,004 51	1,068 18	185 71	185 71
886 81	892 61	809 10	520 56	546 06	438 33	220 95	220 95
.....	.....	.....	.....	.....	.....	.....	.....
777 99	777 99	400 71	680 54	680 54	839 00	386 66	386 66
.....	.....	.....	.....	.....	.....	.....	.....
3,550 00	3,550 00	2,863 00	3,509 82	3,509 82	2,100 00	6,325 50	6,325 50
14,485 05	15,510 84	13,771 04	14,285 41	14,772 12	11,387 25	11,043 46	11,874 66
653 05	457 02	131 94	.....	471 76	10 34	72 58	703 77
187 00	75 00	1,734 01	716 13	993 00	342 12	145 50	33 10
.....	130 00	.....	1,557 53	1,706 42	.....	1,246 67	.....
3,752 00	3,954 00	.....	.....	.....	.....	.....	.....
.....	.....	545 21	.....	.....	.....	.....	.....
19,077 10	20,126 86	16,182 20	16,559 07	17,946 30	11,739 71	12,508 21	12,611 53
14,500 00	14,242 94	16,000 00	13,422 51	13,198 79	9,790 48	.....	.....
.....	.....	.....	1,044 85	518 09	1,709 52	.....	.....
.....	.....	.....	132 12	.....	.....	11,957 44	11,646 74
.....	.....	182 20	.....	.....	.....	.....	.....
14,500 00	14,242 94	16,182 20	14,599 48	13,716 88	11,500 00	11,957 44	11,646 74
.....	257 06	.....	333 49	557 21	209 52	.....	.....
3,752 00	3,954 00	.....	.....	.....	.....	.....	.....
500 00	1,000 00	.....	500 00	1,030 00	.....	450 00	864 02
325 10	672 86	.....	1,126 10	2,642 21	30 19	100 77	100 77
19,077 10	20,126 86	16,182 20	16,559 07	17,946 30	11,739 71	12,508 21	12,611 53
76.0	70.7	100	88.2	76.4	97.1	95.6	92.5

STATEMENT

Comparative Condensed Balance Sheets of Electric Departments

Municipality	Caledonia		Winchester	Stayner
Population	1,175		1,099	1,033
——	1913	1914	1914	1913
ASSETS	$ c.	$ c.	$ c.	$ c.
Lands and Buildings	.....	.....	200 00	.....
Sub-Station Equipment	.....	.....	.....	.....
Distribution System, Overhead	3,572 32	4,283 96	7,001 51	1,211 03
" " Underground	.....	.....	.....	.....
Line Transformers	318 00	318 00	481 86	300 00
Meters	378 57	673 22	997 19	635 78
Street Light Equipment, Regular	161 65	282 27	564 98	86 31
" " Ornamental	.....	.....	.....	.....
Miscel. Equip. and Construction Exp.	424 62	473 20	521 22	128 40
Steam or Hydraulic Plant	.....	.....	.....	.....
Old Plant	.....	.....	1,100 00	7,657 15
Total Plant	4,855 16	6,030 65	10,866 76	10,018 67
Bank and Cash Balance	127 82	11 61	.....	866 87
Inventories	.....	.....	583 44	33 75
Accounts Receivable	.....	189 00	.....	336 86
Sinking Fund	.....	.....	.....	.....
Other Assets	.....	.....	.....	.....
Total Assets	4,982 98	6,231 26	11,450 20	11,256 15
LIABILITIES AND RESERVES				
Liabilities				
Debenture Balance	.....	4,624 00	.....	8,755 34
Accounts Payable	4,496 54	259 17	9,580 89	2,186 72
Bank Overdraft	.....	.....	.....	.....
Other Liabilities	.....	.....	.....	.....
Total Liabilities	4,496 54	4,883 17	9,580 89	10,942 06
Reserves				
Debentures Paid	.....	.....	.....	244 66
Sinking Fund Reserve	.....	.....	.....	.....
Depreciation Reserve	250 00	510 00	500 00	.....
Surplus	236 44	838 09	1,369 31	69 43
Total Liabilities and Reserves	4,982 98	6,231 26	11,450 20	11,256 15
Percentage of Net Debt to Total Assets	90.2	78.4	83.7	97.2

'A"—Continued

of Hydro Municipalities as at December 31st, 1913 and 1914

Stayner	Beaverton	New Toronto	Hagersville		Port Credit	
1,033	1,015	985	977		944	
1914	1914	1914	1913	1914	1913	1914
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
.....	250 00	.....	.....	.....	675 00	675 00
.....	.....	.....	.....	.....	.....	.....
1,301 96	4,513 16	4,623 04	5,177 94	6,240 31	6,428 27	7,332 36
.....	.....	.....	.....	.....	.....	.....
300 00	193 24	663 19	264 30	558 77	439 12	747 98
635 78	70 95	1,080 60	400 11	1,157 05	1,126 28	1,652 18
86 31	399 83	271 18	359 56	415 55	254 09	294 99
.....	.....	.....	.....	.....	.....	.....
128 40	418 32	1,125 40	346 40	96 19	610 26	614 26
.....	.....	.....	.....	.....	.....	.....
7,657 15	4,000 00	.....	.....	.....	.....	.....
10,109 60	9,845 50	7,763 41	6,548 31	8,467 87	9,533 02	11,316 77
.....	683 07	.....	.....	131 65	609 80	.....
34 38	264 76	37 80	.....	486 55	18 46	.....
871 94	.....	600 00	.....	.....	371 06	180 00
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
11,015 92	10,793 33	8,401 21	6,548 31	9,086 07	10,532 34	11,496 77
8,496 00	10,000 00	7,879 58	6,000 00	7,909 69	7,268 56	7,144 09
1,005 07	793 33	.....	357 81	.....	1,300 83	1,300 48
572 29	.....	65 98	164 25	.....	208 10	61 94
.....	.....	.....	.....	.....	.....	.....
10,073 36	10,793 33	7,945 56	6,522 06	7,909 69	8,777 49	8,506 51
504 00	.....	120 42	.....	90 31	231 44	355 91
.....	.....	.....	.....	.....	.....	.....
115 00	.....	200 00	.....	425 00	446 00	981 00
323 56	.....	135 23	26 25	661 07	1,077 41	1,653 35
11,015 92	10,793 33	8,401 21	6,548 31	9,086 07	10,532 34	11,496 77
91.4	100	94.6	99.6	87.0	83.3	74.0

STATEMENT

Comparative Condensed Balance Sheets of Electric Departments

Municipality Population	Cannington 934	Port Stanley 849		Chesterville 831
——	1914	1913	1914	1914
ASSETS	$ c.	$ c.	$ c.	$ c.
Lands and Buildings	.....	1,195 99	1,505 38	.....
Sub-Station Equipment	.....	.....	.....	.....
Distribution System, Overhead	4,739 60	8,635 69	8,861 69	4,098 65
" " Underground	.....	.....	.....	.....
Line Transformers	276 00	1,169 56	1,256 56	174 78
Meters	315 69	1,553 58	1,736 26	236 80
Street Light Equipment, Regular	349 38	570 60	570 60	160 34
" " Ornamental	.....	.....	.....	.....
Miscel. Equip. and Construction Exp.	.....	5,517 16	5,517 16	479 12
Steam or Hydraulic Plant	.....	.....	.....	.....
Old Plant	3,729 37	1,000 00	1,000 00	.....
Total Plant	9,410 04	19,642 58	20,447 65	5,149 69
Bank and Cash Balance	2,909 90	2,584 50	4,029 25	696 36
Inventories	.....	.....	.....	.....
Accounts Receivable	.....	.....	.....	50 00
Sinking Fund	.....	.....	.....	.....
Other Assets	.....	.....	.....	.....
Total Assets	12,319 94	22,227 08	24,476 90	5,896 05
LIABILITIES AND RESERVES				
Liabilities				
Debenture Balance	12,000 00	18,153 58	17,828 48	4,931 00
Accounts Payable	319 94	.....	40 00	602 44
Bank Overdraft	.....	.....	.....	.....
Other Liabilities	.....	.....	.....	17 47
Total Liabilities	12,319 94	18,153 58	17,868 48	5,550 91
Reserves				
Debentures Paid	.....	796 42	1,121 52	69 00
Sinking Fund Reserve	.....	.....	.....	.....
Depreciation Reserve	.....	1,388 08	2,338 08	247 50
Surplus	.....	1,889 00	3,148 82	28 64
Total Liabilities and Reserves	12,319 94	22,227 08	24,476 90	5,896 05
Percentage of Net Debt to Total Assets	100	81.7	72.1	94.1

"A"—Continued

of Hydro Municipalities as at December 31st, 1913 and 1914

Waterdown 805		Elmvale 775		Baden 710		Streetsville 694
1913	1914	1913	1914	1913	1914	1914
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
.....	.....	106 25	106 25	660 64	660 64	.....
.....	.....	.....	.....	.....	.....	.....
5,323 22	6,241 13	5,369 35	5,373 48	3,416 34	3,575 21	5,929 42
.....	.....	.....	.....	.....	.....	.....
1,056 10	1,645 24	268 85	432 87	606 38	640 67	.....
789 34	1,176 47	773 70	825 05	514 55	670 95	.....
116 96	156 65	298 93	298 93	342 72	370 02	.....
.....	.....	.....	.....	.....	.....	.....
88 34	88 34	455 93	455 93	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
7,373 96	9,307 83	7,273 01	7,492 51	5,540 63	5,917 49	5,929 42
274 45	259 05	.....	.....	330 43	1,265 29	.....
.....	104 26	.....	.....	.....	6 71	.....
.....	.....	36 00	224 42	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
.....	.....	94 13	.....	.....	.....	.....
7,648 41	9,671 14	7,403 14	7,716 93	5,871 06	7,189 49	5,929 42
6,303 41	6,096 89	6,894 64	6,784 01	4,843 68	4,759 59	5,645 00
.....	1,200 41	.....	.....	115 22	350 00	284 42
.....	.....	333 39	287 81	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
6,303 41	7,297 30	7,228 03	7,071 82	4,958 90	5,109 59	5,929 42
196 59	403 11	105 36	215 99	156 32	240 41	.....
.....	.....	.....	.....	.....	.....	.....
365 00	785 00	.....	350 00	277 00	557 00	.....
783 41	1,185 73	.....	79 12	478 84	1,282 49	.....
7,648 41	9,671 14	7,403 14	7,716 93	5,871 06	7,189 49	5,929 42
82.4	74.8	97.6	91.6	84.5	71.1	100.0

STATEMENT

Comparative Condensed Balance Sheets of Electric Departments

Municipality	Sunderland	Creemore	Beachville	
Population	600	590	501	
——	1914	1914	1913	1914
ASSETS	$ c.	$ c.	$ c.	$ c.
Lands and Buildings	.....	.....	161 03	161 03
Sub-Station Equipment	.....	.....	.....	.....
Distribution System, Overhead	2,281 98	3,459 73	6,238 17	6,314 43
" " Underground	.....	.....	.....	.....
Line Transformers	470 00	315 48	604 85	604 85
Meters	.....	570 00	579 83	600 43
Street Light Equipment, Regular	153 02	261 17	237 03	237 03
" " Ornamental	.....	.....	.....	.....
Miscel. Equip. and Construction Exp.	21 74	111 89	540 36	540 36
Steam or Hydraulic Plant	.....	.....	.....	.....
Old Plant	2,030 00	.....	.....	.....
Total Plant	4,956 74	4,718 27	8,361 27	8,458 13
Bank and Cash Balance	843 26	316 52	2,972 79	275 58
Inventories	.....	131 10	50 00	117 45
Accounts Receivable	.....	.....	1,732 83	1,029 60
Sinking Fund	.....	.....	.....	.....
Other Assets	.....	.....	.....	.....
Total Assets	5,800 00	5,165 89	13,116 89	9,880 76
LIABILITIES AND RESERVES				
Liabilities				
Debenture Balance	5,800 00	4,602 75	5,360 00	5,213 71
Accounts Payable	.....	.....	6,013 07	477 97
Bank Overdraft	.....	348 85	.....	.....
Other Liabilities	.....	.....	.....	.....
Total Liabilities	5,800 00	4,951 60	11,373 07	5,691 68
Reserves				
Debentures Paid	.....	.....	.....	146 29
Sinking Fund Reserve	.....	.....	.....	.....
Depreciation Reserve	.....	.....	525 00	925 00
Surplus	.....	214 29	1,218 82	3,117 79
Total Liabilities and Reserves	5,800 00	5,165 89	13,116 89	9,880 76
Percentage of Net Debt to Total Assets	100	95.9	86.7	57.7

'A"—Concluded

of Hydro Municipalities as at December 31st, 1913 and 1914

Woodville	Rockwood		Coldwater		Thamesford	Thorndale	Toronto
500	650		609		400	257	Township
1914	1913	1914	1913	1914	1914	1914	1914
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
.....	79 00	79 00	275 00	275 00	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....
966 94	3,533 29	3,743 79	5,179 40	5,278 18	2,812 54	1,738 15	778 22
.....	.....	.....	.....	.....	.....	.....	.....
27 00	894 50	853 43	797 57	1,010 77	937 05	381 71	.....
.....	488 13	648 08	972 07	1,060 96	833 21	466 53	.....
46 72	254 58	254 58	343 78	354 20	155 62	59 40	.....
.....	.....	.....	.....	.....	.....	.....	.....
31 45	277 01	277 01	132 53	132 53	257 89	148 95	.....
.....	.....	.....	.....	.....	.....	.....	.....
2,250 00	.....	.....	.....	.....	.....	.....	.....
3,322 11	5,526 51	5,855 89	7,700 35	8,111 64	4,996 31	2,794 74	778 22
677 89	.....	.....	.....	.....	334 68	13 50	905 45
.....	56 76	83 31	.....	1,195 69	4 25	45 21	.....
.....	.....	.....	1,849 84	268 72	.....	.....	2,339 06
.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....
4,000 00	5,583 27	5,939 20	9,550 19	9,576 05	5,335 24	2,853 45	4,022 73
4,000 00	2,000 00	1,627 97	7,000 00	6,903 36	3,023 49	2,432 24	.....
.....	.....	.....	.....	81 66	1,681 81	100 00	974 44
.....	3,315 63	2,413 87	1,680 18	653 84	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....
4,000 00	5,315 63	4,041 84	8,680 18	7,638 86	4,705 30	2,532 24	974 44
.....	.....	372 03	.....	96 64	34 51	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	275 00	375 00	755 00	250 00	130 00	.....
.....	267 64	1,250 33	495 01	1,085 55	345 43	191 21	3,048 29
4,000 00	5,583 27	5,939 20	9,550 19	9,576 05	5,335 24	2,853 45	4,022 73
100	95.0	68.1	90.9	79.8	88.0	88.7	.....

STATE

Report Showing Operation of Municipalities

Municipality	Months Covered by Report	Population	Plant Cost	Debentures and Construction Overdraft	Operation and Maintenance	Fixed Charges	Total Operation
			$ c.	$ c.	$ c.	$ c.	$ c.
Toronto	12	445,575	6,183,374 95	5,399,132 49	864,692 90	325,551 67	1,190,244 57
Hamilton	12	100,808	981,026 61	922,528 10	139,807 25	46,398 68	186,205 93
Ottawa	12	100,180	831,851 73	566,973 22	122,460 24	38,002 88	160,463 12
London	12	55,026	654,230 26	584,530 34	161,935 49	35,127 20	197,062 69
Brantford	9	26,454	216,029 51	210,377 24	19,878 13	7,444 31	27,322 44
Windsor	4	22,080	177,679 97	177,679 97	7,591 75	666 66	8,258 41
Peterboro	3	20,150	135,206 76	127,015 99	19,499 31	2,026 21	21,525 52
Berlin	12	18,338	320,784 18	250,817 14	61,900 88	18,719 43	80,620 31
Port Arthur	12	18,025	658,791 70	509,678 07	83,566 34	40,489 67	124,056 01
St. Thomas	12	16,794	162,073 71	90,833 51	52,510 69	7,406 14	59,916 83
Stratford	12	16,425	180,494 81	133,998 88	37,735 14	12,989 75	50,724 89
Guelph	12	16,319	203,868 02	114,423 10	46,331 23	10,273 27	56,604 50
St. Catharines	3	16,186	112,626 37	110,710 39	13,136 28	1,105 87	14,242 15
Galt	12	11,932	220,824 78	169,859 61	31,232 85	10,337 35	41,570 20
Woodstock	12	10,154	144,809 70	74,849 13	29,996 27	7,219 04	37,215 31
Barrie	12	7,215	103,349 62	53,436 13	16,992 02	6,052 29	23,044 31
Welland	12	7,208	83,890 13	81,928 83	12,337 19	5,080 20	17,417 39
Collingwood	12	6,646	58,259 73	35,362 35	14,320 97	4,369 96	18,690 93
Midland	12	6,253	75,934 49	40,788 82	11,221 44	4,267 05	15,488 49
Ingersoll	12	5,149	93,981 47	73,301 79	15,719 97	5,198 90	20,918 87
Preston	12	4,923	97,594 84	71,055 09	24,009 06	7,300 84	31,309 90
Dundas	12	4,866	61,196 17	51,728 16	9,239 50	4,361 01	13,600 51
Goderich	12	4,811	74,208 10	51,891 19	9,087 17	4,182 09	13,269 26
Waterloo	12	4,737	90,709 90	62,503 13	16,078 43	3,473 33	19,551 76
Walkerville	5	4,721	99,442 74	98,422 59	9,331 18	1,908 19	11,239 37
Paris	12	4,216	94,889 78	62,973 75	7,427 73	5,849 94	13,277 67
Penetang	12	3,963	42,435 73	28,858 61	10,750 00	1,986 09	12,736 09
St. Mary's	12	3,783	68,381 15	44,900 97	12,704 07	4,658 00	17,362 07
Brampton	12	3,344	78,247 68	64,896 56	15,717 55	4,936 36	20,653 91
Tillsonburg	12	3,155	37,546 44	33,907 07	11,483 80	2,727 41	14,211 21
Hespeler	12	3,086	30,179 74	28,452 44	7,418 55	3,144 33	10,562 88
Prescott	12	2,877	51,938 12	19,719 67	7,452 50	1,722 31	9,174 81
Weston	12	2,307	31,974 87	19,588 38	8,643 36	1,588 42	10,231 78
Elmira	13	2,134	18,063 93	19,747 02	4,381 75	1,425 22	5,806 97
Clinton	9	2,112	36,025 13	35,737 86	4,644 58	1,838 56	6,483 14
Milton	12	2,053	27,184 73	22,510 00	8,964 32	2,277 04	11,241 36
Georgetown	12	1,965	22,381 38	19,747 02	5,399 38	1,466 55	6,865 93
Seaforth	12	1,901	28,630 80	23,608 55	10,891 80	1,704 25	12,596 05
Mimico	12	1,758	21,664 35	18,574 07	3,618 77	1,561 45	5,180 22
Mitchell	12	1,746	25,742 06	10,094 81	6,298 13	2,224 06	8,522 19
New Hamburg	12	1,735	24,236 11	16,838 31	6,253 13	1,172 91	7,426 04
Acton	12	1,634	15,510 84	10,288 94	3,470 81	1,124 06	4,594 87
Fergus	1	1,587	13,771 04	16,000 00	.....	.....	.....
Norwich	12	1,185	14,772 12	13,198 79	3,994 24	960 58	4,954 82
Elora	1	1,225	11,387 25	11,500 00	224 02	125 35	349 37
Pt. Dalhousie	12	1,280	11,874 66	11,646 74	3,825 64	725 89	4,551 53
Caledonia	12	1,175	6,030 65	4,624 00	864 57	122 86	987 43
Winchester	12	1,099	10,866 76	9,580 89	2,060 98	541 80	2,602 78
Stayner	12	1,033	10,109 60	8,496 00	2,910 30	784 66	3,694 96
Beaverton	.....	1,015	9,845 50	10,000 00	.....	.....	.....

MENT "B"

for Period ending December 31st, 1914

Revenue	Surplus	Depreciation Charge	Surplus less Depreciation Charge	Number of Consumers				Percent. of Consumers to Population	H. P. taken in Dec. 1914
				Domestic	Com'l	Power	Total		
$ c.	$ c.	$ c.	$ c.						
1,482,727 06	292,482 49	147,181 40	145,301 09	23,181	6,276	1,494	30,951	a 6.9	2,8754
234,178 56	47,972 63	21,053 66	26,918 97	8,404	1,375	337	10,116	a 10.	6,481
202,910 83	42,447 71	32,650 00	9,797 71	6,342	852	156	7,350	a 7.3	3,793
269,851 80	72,789 11	27,588 39	45,200 72	6,299	1,075	275	7,649	a 13.9	5,188
35,496 54	8,174 10	6,000 00	2,174 10	1,184	300	11	1,495	a 5.7	1,011
8,258 41	.....	.....	.....	1,802	257	10	2,069	a 9.4	818
26,506 44	4,980 92	.....	4,980 92	2,592	507	93	3,292	16.3	2,620
104,750 73	24,130 42	12,884 05	11,246 37	1,694	519	130	2,343	12.8	2,323
179,294 93	55,238 92	16,469 79	38,769 13	2,969	550	55	3,574	19.8	2,340
82,844 46	22,927 17	7,350 00	15,577 17	1,499	384	92	1,975	11.8	1,575
61,475 49	10,750 60	4,631 50	6,119 10	1,403	396	99	1,898	11.5	1,063
82,099 59	25,495 09	10,200 00	15,295 09	1,573	441	80	2,094	12.8	1,876
16,158 13	1,915 98	850 00	1,065 98	833	92	20	945	a 5.8	1,240
60,995 93	19,425 73	10,600 00	8,825 73	1,745	339	70	2,154	18.0	1,293
48,041 69	10,826 38	6,450 00	4,376 38	949	337	57	1,343	13.2	860
29,037 01	5,992 70	3,500 00	2,492 70	651	200	13	864	12.0	449
19,442 29	2,024 90	.....	2,024 90	492	53	23	568	a 7.9	617
25,225 79	6,534 86	2,400 00	4,134 86	554	232	21	807	12.1	346
22,216 03	6,727 54	3,200 00	3,527 54	621	176	32	829	13.2	430
28,474 73	7,555 86	3,168 00	4,387 86	416	194	48	658	12.8	452
36,383 81	5,073 91	3,400 00	1,673 91	629	165	29	823	16.7	837
16,904 69	3,304 18	2,675 00	629 18	520	153	30	703	ab 14.4	395
18,159 27	4,890 01	2,920 00	1,970 01	400	155	10	565	11.7	208
28,446 73	8,894 97	3,500 00	5,394 97	430	153	51	634	13.4	450
12,289 52	1,050 15	.....	1,050 15	790	175	75	1,040	22.0	238
13,067 22	f *210 45*	.....	.....	354	142	1	497	11.8	268
15,019 25	2,283 16	1,960 00	323 16	153	100	15	268	6.8	278
23,399 33	6,037 26	3,340 00	2,697 26	454	161	30	645	17.1	301
25,713 21	5,059 30	3,000 00	2,059 30	627	174	21	822	24.6	476
17,577 44	3,366 23	1,830 00	1,536 23	300	160	16	476	15.1	248
12,164 43	1,601 55	1,350 00	251 55	229	85	13	327	10.6	212
12,077 02	2,902 21	1,950 00	952 21	342	122	10	474	16.5	186
13,367 90	3,136 12	1,450 00	1,686 12	352	78	10	440	19.0	154
7,545 71	1,738 74	650 00	1,088 74	158	65	8	231	10.8	83
6,412 77	f *70 37*	.....	.....	179	111	7	297	14.0	106
17,319 25	6,077 89	1,250 00	4,827 89	150	79	6	235	11.5	153
10,251 63	3,385 70	850 00	2,535 70	242	95	17	354	17.9	253
14,735 77	2,139 72	1,400 00	739 72	211	112	10	333	17.5	253
7,098 14	1,917 92	920 00	997 92	462	10	5	477	ab 27.1	114
11,521 65	2,999 46	1,200 00	1,799 46	191	100	16	307	17.3	123
10,219 97	2,793 93	900 00	1,893 93	170	68	6	244	14.0	92
5,442 63	847 76	500 00	347 76	146	58	5	209	12.8	75
.....	.....	.....	.....	95	80	1	176	11.1	72
7,000 93	2,046 11	530 00	1,516 11	198	84	3	285	b 24.0	84
379 56	30 19	.....	30 19	60	55	.....	115	9.4	48
4,965 55	414 02	414 02	.....	240	10	3	253	19.8	119
1,849 08	861 65	260 00	601 65	21	32	.....	53	4.5	31
4,472 09	1,869 31	500 00	1,369 31	103	50	.....	153	13.9	53
4,064 09	369 13	115 00	254 13	108	56	2	166	16.1	60
.....	.....	.....	.....	100	50	.....	150	15.0	67

Note "a"—Competitive territory.

"b"—Includes some rural load.

"d"—Includes summer cottages.

"e"—Approximate figures, subject to final audit.

"f"—Loss.

STATEMENT

Report Showing Operation of Municipalities

Municipality	Months Covered by Report	Population	Plant Cost	Debentures and Construction Overdraft	Operation and Maintenance	Fixed Charges	Total Operation
			$ c.	$ c.	$ c.	$ c.	$ c.
New Toronto.	12	985	7,763 41	7,879 58	739 89	178 44	918 33
Hagersville ..	12	977	8,467 87	7,909 69	3,755 26	383 93	4,139 19
Pt. Credit ...	12	944	11,316 77	8,444 57	1,898 41	571 55	2,469 96
Cannington ..	.....	934	9,410 04	12,000 00	.....	.....	.....
Pt. Stanley..	12	849	20,447 65	17,828 48	4,667 37	1,232 82	5,900 19
Chesterville..	12	831	5,149 69	4,931 00	1,166 66	344 00	1,510 66
Waterdown ..	12	805	9,307 83	7,297 30	1,984 39	723 09	2,707 48
Elmvale	12	775	7,492 51	6,784 01	1,673 75	434 67	2,108 42
Baden	12	710	5,917 49	5,109 59	5,124 81	325 26	5,450 07
Streetsville ..	.....	694	5,929 42	5,929 42	.....	.....	.....
Sunderland ..	.....	600	4,956 74	5,800 00	.....	.....	.....
Creemore	2	590	4,718 27	4,602 75	168 14	20 59	188 73
Beachville ...	12	501	8,458 13	5,691 68	3,584 95	501 45	4,086 40
Woodville....	.....	500	3,322 11	4,000 00	.....	.....	.....
Rockwood	12	650	5,855 89	4,041 84	1,269 18	413 19	1,682 37
Coldwater ...	12	609	8,111 64	6,903 66	1,136 49	481 64	1,618 13
Thamesford..	10	400	4,996 31	4,705 30	1,190 52	249 94	1,440 46
Thorndale ...	10	257	2,794 74	2,532 24	638 41	109 92	748 33
Toronto Twp.	17	.....	778 22	.....	3,744 18	1,358 65	5,102 83
			12,901,125 40	9,751,706 82	2,012,754 07	661,949 23	2,674,703 30

"B"—Continued

for Period ending December 31st, 1914

Revenue	Surplus	Depreciation Charge	Surplus less Depreciation Charge	Number of Consumers				Per cent of Consumers to Population	H. P. taken in Dec. 1914
				Domestic	Com'l	Power	Total		
$ c.	$ c.	$ c.	6 c.						
1,253 56	335 23	200 00	135 23	100	4	1	105	a 10.7	15
5,101 41	962 22	425 00	537 22	70	60	3	133	13.6	111
3,580 90	1,110 94	535 00	575 94	125	35	2	162	17.2	56
.....	.....	.....	.....	100	60	.....	160	17.2	67
8,110 01	2,209 82	950 00	1,259 82	229	72	12	313	d 37.3	73
1,786 80	276 14	247 50	28 64	68	35	.....	103	12.4	41
3,529 80	822 32	420 00	402 32	71	24	5	100	12.4	64
2,631 67	523 25	350 00	173 25	57	48	2	107	13.8	60
6,533 72	1,083 65	280 00	803 65	82	.....	4	86	12.1	154
.....	.....	.....	.....	.....	.....	2	2	.....	.....
.....	.....	.....	.....	50	25	.....	75	12.5	29
403 02	214 29	.....	214 29	58	54	1	113	19.2	48
6,385 37	2,298 97	400 00	1,898 97	31	12	4	47	9.4	126
.....	.....	.....	.....	40	20	.....	60	11.9	54
2,940 06	1,257 69	275 00	982 69	54	7	3	64	9.8	29
2,588 67	970 54	380 00	590 54	62	39	2	103	16.9	31
2,035 89	795 43	250 00	345 43	44	26	2	72	18.0	37
1,069 54	321 21	130 00	191 21	34	18	1	53	20.6	13
8,151 12	3,048 29	.....	3,048 29	155	.....	5	160	.....	84
3,433,936 16	759,232 86	357,883 31	401,349 55	75,147	18,132	3,565	96,744	.....	.....

Note "a"—Competitive territory.
"b"—Includes some rural load.
"d"—Includes summer cottages.
"e"—Approximate figures, subject to final audit.
"f"—Loss.

STATEMENT

Comparative Detailed Operating Reports of Electric Departments of

Municipality	Toronto		Hamilton	
Population	445,575		100,808	
——	1913	1914	1913	1914
	a	a		a
EARNINGS	$ c.	$ c.	$ c.	$ c.
Domestic Light	190,376 89	289,645 45	34,451 95	74,668 38
Commercial Light	233,799 04	305,534 31	25,453 99	35,125 57
Power	347,708 88	483,681 15	47,415 58	70,665 43
Street Light	344,933 79	364,214 17	2,250 89	51,154 36
Miscellaneous	29,891 21	39,651 98	9,841 52	2,564 82
Total Earnings	1,146,709 81	1,482,727 06	119,413 93	234,178 56
EXPENSES				
Power Purchased	255,986 26	323,586 97	47,307 65	78,968 72
Sub-Station Operation	32,216 66	42,667 33	3,240 97	5,741 24
" " Maintenance	11,510 69	23,560 14	94 01	653 61
Distribution System. Operation and Maintenance	50,693 34	59,013 81	3,168 21	6,504 84
Line Transformer Maintenance	3,396 98	5,218 22	1,216 21	505 26
Meter "	1,648 28	3,072 21	16 39	143 97
Consumers' Premises-Expense	36,536 64	52,893 31	2,693 70	2,782 23
Street Light System, Operation and Maintenance	45,801 72	48,674 18	1,375 46	13,380 35
Promotion of Business	60,256 03	71,477 64	4,391 01	3,999 76
Billing and Collecting	43,581 71	50,028 39	6,270 38	10,825 27
General Office, Salaries and Expenses	85,957 58	125,972 92	3,623 22	12,894 66
Undistributed Expenses	44,304 25	54,191 98	1,289 35	3,407 34
Interest and Debenture Payments	274,285 24	325,551 67	30,201 49	46,398 68
Miscellaneous Expenses	.....	b 4,335 80	.....	.....
Total Expenses	946,175 38	1,190,244 57	104,888 05	186,205 93
Surplus	200,534 43	292,482 49	14,525 88	47,972 63
Loss	.....	.....	.....	.....
Depreciation Charge	115,236 80	147,181 40	9,031 35	21,053 66
Surplus less Depreciation Charges	85,297 63	145,301 09	5,494 53	26,918 97

Notes.—
"a" Approximate figures only. Accounts not finally audited
"b" Patriotic Fund Contributions

"C"—Continued

Hydro Municipalities for the year ending December 31st, 1913 and 1914

Ottawa		London		Brantford	Windsor	Peterboro'
100,180		55,026		26,454	22,080	20,150
1913	1914	1913	1914	1914	1914	1914
				e	f	g
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
68,032 27	68,767 48	41,172 64	57,473 08	7,103 77	3,143 41	8,661 71
53,438 04	51,769 72	39,256 07	47,593 44	5,392 87	1,107 38	7,749 91
26,978 76	31,748 23	79,659 78	130,936 35	647 69	9 77	7,013 23
49,199 57	50,439 29	28,372 20	30,535 83	21,724 64	3,997 85	3,081 59
.....	186 11	3,763 78	3,313 10	627 57	.....	.....
197,648 64	202,910 83	192,224 47	269,851 80	35,496 54	8,258 41	26,506 44
50,750 00	55,512 39	72,676 41	97,404 63	12,999 65	4,330 41	11,920 90
3,127 63	3,321 20	5,816 18	9,925 89	1,069 43	408 67	840 05
107 58	300 81	519 81	767 40	7 84	.....	9 08
13,694 44	17,041 58	5,342 67	3,850 78	376 83	240 41	996 31
245 82	1,996 40	1,674 88	760 87	65 26	.....	26 35
1,537 17	2,390 11	138 23	95 60	10 08	.....	6 52
10,572 43	6,082 30	1,827 71	2,119 53	40	.....	.....
15,465 59	15,318 91	5,278 72	8,511 05	1,460 00	.....	1,465 01
1,008 50	1,060 00	5,833 84	5,840 01	1,608 37	.....	.....
6,417 69	7,481 30	6,738 13	9,126 81	994 63	441 36	242 70
6,941 68	9,604 33	14,180 20	16,845 61	1,069 66	2,170 90	3,777 45
1,453 47	2,350 91	6,297 08	6,687 31	215 98	.....	214 94
30,961 54	38,002 88	29,488 97	35,127 20	7,444 31	666 66	2,026 21
.....	.....	.....	.....	.....	.....	.....
142,283 54	160,463 12	155,812 83	197,062 69	27,322 44	8,258 41	21,525 52
55,365 10	42,447 71	36,411 64	72,789 11	8,174 10	.....	4,980 92
.....	.....	.....	.....	.....	.....	.....
24,000 00	32,650 00	21,058 82	27,588 39	6,000 00	.....	.....
31,365 10	9,797 71	15,352 82	45,200 72	2,174 10	.....	4,980 92

Notes—
"e" 9 months' operation
"f" 4 months' operation
"g" 3 months' operation

STATEMENT

Comparative Detailed Operating Reports of Electric Departments of

Municipality	Berlin		Port Arthur	
Population	18,323		18,025	
——	1913	1914	1913	1914
EARNINGS	k			
	$ c.	$ c.	$ c.	$ c.
Domestic Light	16,558 82	17,757 08	81,830 66	38,097 65
Commercial Light	20,985 35	19,549 45	h	32,933 91
Power	38,368 34	49,173 17	78,193 51	92,804 49
Street Light	17,373 81	16,544 11	14,709 41	15,458 88
Miscellaneous	1,268 87	1,726 92	.....	.....
Total Earnings	94,555 19	104,750 73	174,733 58	179,294 93
EXPENSES				
Power Purchased	33,359 47	40,275 75	43,664 83	53,412 42
Sub-Station Operation	4,892 72	4,282 95	3,652 53	3,268 30
" " Maintenance...	1,175 64	294 68	2,140 94	4,323 79
Distribution System, Operation and Maintenance	1,575 15	4,411 10	9,013 80	8,003 88
Line Transformer Maintenance	205 39	20 35	1 75	454 62
Meter "	326 51	564 97	112 13	670 91
Consumers' Premises—Expense	101 97	75 83	322 64	945 31
Street Light System, Operation and Maintenance	2,803 88	3,884 76	1,543 03	2,146 96
Promotion of Business	452 28	630 50	361 85	100 85
Billing and Collecting	1,901 40	2,259 54	2,630 19	5,324 25
General Office, Salaries and Expenses	2,532 25	2,615 07	2,613 61	2,557 42
Undistributed Expenses	1,966 04	1,966 38	2,012 67	2,357 63
Interest and Debenture Payments	17,897 45	18,719 43	37,556 73	40,489 67
Miscellaneous Expenses	.....	b 619 00	.....	.....
Total Expenses	69,190 15	80,620 31	105,626 70	124,056 01
Surplus	25,365 04	24,130 42	69,106 88	55,238 92
Loss	.....	.....	.....	.....
Depreciation Charge	10,980 79	12,884 05	13,647 55	16,469 79
Surplus less Depreciation Charge	14,384 25	11,246 37	55,459 33	38,769 13

Notes —
"h" Domestic and Commercial light not divided
"b" Patriotic Fund Contributions
"k" 13 months' operation

"C"—Continued

Hydro Municipalities for the year ending December 31st, 1913 and 1914

St. Thomas 16,794		Stratford 16,425		Guelph 16,319		St.Catharines 16,186
1913	1914	1913	1914	1913	1914	1914
						g
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
11,125 50	13,221 00	11,636 59	15,180 91	11,528 09	16,920 54	2,013 49
16,097 41	13,480 75	17,033 98	16,336 30	15,075 61	15,923 51	412 75
36,550 23	44,247 13	15,123 78	16,519 24	42,091 34	38,148 46	12,742 98
10,989 22	11,025 36	12,120 00	12,120 00	9,500 04	9,590 66	944 63
361 15	869 76	69 33	1,319 04	2,531 74	1,516 42	44 28
75,124 04	82,844 00	55,983 68	61,475 49	80,726 82	82,099 59	16,158 13
31,435 85	38,279 18	22,028 75	25,875 69	32,473 66	30,460 41	9,328 14
2,452 25	2,571 06	1,651 06	1,557 16	1,700 14	540 50	579 90
913 99	80 40	200 54	16 70	1,076 44	733 05	46 19
1,580 22	2,989 04	1,630 72	2,515 22	3,004 51	3,897 65	249 06
47 57	77 64	148 48	1 56	179 90	161 05	640 56
53 40	183 34	261 33	37 34	585 91	711 63	152 97
.....	.....	501 90	.....	206 39	.....	.....
2,405 21	3,023 53	1,509 91	926 11	1,566 58	1,380 19	443 16
.....	.....	.....	62 45	.....	.....	981 77
339 43	1,604 98	1,325 47	1,647 47	430 35	2,257 35	107 00
1,593 77	2,733 80	2,339 27	1,918 44	3,424 77	3,003 77	607 53
739 67	967 72	211 15	1,211 78	1,730 98	2,351 61	.....
7,402 65	7,406 14	10,536 75	12,989 75	10,273 27	10,273 27	1,105 87
.....	.....	.....	b 1,750 00	d 884 95	d 834 02	.....
48,964 01	59,916 83	42,345 33	50,724 89	57,567 85	56,604 50	14,242 15
26,160 03	22,927 17	13,638 35	10,750 60	23,158 97	25,495 09	1,915 98
.....	.....	.....	.....	.....	.....	.....
6,900 00	7,350 00	3,420 00	4,631 50	8,000 00	10,200 00	850 00
19,260 03	15,577 17	10,218 35	6,119 10	15,158 97	15,295 09	1,065 98

Notes—
"d" Motor Repairs on leased motors
"b" Patriotic Fund Contributions
"g" 3 months' operation

STATEMENT

Comparative Detailed Operating Reports of Electric Departments of

Municipality	Galt		Woodstock	
Population	11,932		10,154	
——	1913	1914	1913	1914
EARNINGS				
	$ c.	$ c.	$ c.	$ c.
Domestic Light	10,535 38	15,797 16	6,495 02	8,807 40
Commercial Light	11,648 49	11,952 75	12,942 32	11,610 14
Power	16,575 61	23,826 87	20,262 52	19,832 26
Street Light	6,280 25	8,500 00	7,160 00	7,320 00
Miscellaneous	194 00	919 15	354 18	471 80
Total Earnings	45,233 73	60,995 93	47,214 04	48,041 50
EXPENSES				
Power Purchased	17,883 91	21,134 48	18,798 66	18,690 30
Sub-Station Operation	1,761 14	1,930 95	1,834 83	2,149 53
" " Maintenance	180 76	99 42	497 39	83 02
Distribution System, Operation and Maintenance	446 24	1,729 80	1,827 65	1,566 91
Line Transformer Maintenance	11 48	129 05	4 84	23 75
Meter "	2 00	91 88	70 75	57 05
Consumers' Premises—Expense	.....	208 54	345 00	.....
Street Light System, Operation and Maintenance	296 88	2,234 06	1,142 30	1,665 72
Promotion of Business	.....	.....	.....	.....
Billing and Collecting	1,188 20	1,868 30	1,115 75	1,628 44
General Office, Salaries and Expenses	1,792 40	1,618 71	2,513 73	3,050 10
Undistributed Expenses	.....	187 55	447 96	581 45
Interest and Debenture Payments	9,721 64	10,337 35	6,853 83	7,219 04
Miscellaneous Expenses	.....	.....	.....	b 500 00
Total Expenses	33,284 65	41,570 20	35,806 87	37,215 31
Surplus	11,949 08	19,425 73	11,407 17	10,826 38
Loss	.....	.....	.....	.....
Depreciation Charge	8,400 00	10,600 00	5,827 40	6,450 00
Surplus less Depreciation Charge	3,549 08	8,825 73	5,579 77	4,376 38

Note —
"b" Contribution to Patriotic Fund

"C"—Continued

Hydro Municipalities for the years ending December 31st, 1913 and 1914

Barrie 7,215		Welland 7,208		Collingwood 6,646		Midland 6,253	
1913	1914	1913	1914	1913	1914	1913	1914
		f					
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
10,071 55	11,149 49	1,369 67	4,411 20	8,775 83	7,857 86	6,095 11	6,941 07
9,252 70	9,464 64	558 46	1,676 38	7,600 00	7,555 54	6,104 16	5,048 06
3,393 45	3,712 24	4,307 21	8,305 71	896 72	5,165 39	5,700 22	6,484 43
4,292 53	4,572 75	1,395 00	5,049 00	3,802 88	4,647 00	3,463 07	3,728 76
583 28	137 89	.....	.....	106 21	.....	.....	13 71
27,593 51	29,037 01	7,630 34	19,442 29	21,181 64	25,225 79	21,362 56	22,216 03
6,611 27	10,873 86	4,861 38	7,598 77	7,480 48	10,450 24	6,059 33	6,539 10
5,706 97	2,745 68	295 43	406 99	1,952 60	2 25	.....	.....
.....	.....	.....	32 30	.....	10 51	.....	.....
679 16	448 87	191 18	138 94	1,374 21	749 16	989 11	1,284 29
.....	.....	32 82	107 53	9 19	36 83	57 20	420 06
17 92	.....	50	57 21	13 37	15 25	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....
402 06	108 02	123 82	446 23	133 20	664 19	526 53	1,020 22
.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	317 42	748 38	252 08	302 39	221 04	157 39
3,578 67	2,294 92	798 53	2,790 59	2,066 94	1,916 97	1,435 86	1,692 75
544 58	510 67	39 45	10 25	209 90	173 18	.....	107 63
5,590 40	6,052 29	2,638 54	5,080 20	4,277 77	4,369 96	4,134 55	4,267 05
23,131 03	23,044 31	9,299 07	17,417 39	17,769 94	18,690 93	13,423 62	15,488 49
4,462 48	5,992 70	.....	2,024 90	3,411 70	3,534 86	7,938 94	6,727 54
.....	.....	1,668 73	.....	.....	.....	.....	.....
3,350 00	3,500 00	.....	.....	2,390 00	2,400 00	2,950 00	3,200 00
1,112 48	2,492 70	.....	2,024 90	1,021 70	4,134 86	4,988 94	3,527 54

Note—
"f" 4 months' operation

STATEMENT

Comparative Detailed Operating Reports of Electric Departments of

Municipality	Ingersoll		Preston	
Population	5,149		4,923	
——	1913	1914	1913	1914
EARNINGS	$ c.	$ c.	$ c.	$ c.
Domestic Light	3,595 03	5,085 82	5,477 10	6,520 39
Commercial Light	6,048 51	6,359 72	5,366 77	5,011 15
Power	15,293 44	12,818 27	21,017 68	21,975 26
Street Light	4,262 02	3,960 04	2,594 55	2,778 48
Miscellaneous	976 99	250 88	232 47	98 53
Total Earnings	30.176 00	28,474 73	34,688 57	36,383 81
EXPENSES				
Power Purchased	11,966 61	11,441 79	16,673 20	17,460 00
Sub-Station Operation	828 83	907 02	1,459 16	1,509 01
" " Maintenance	.....	.....	49 21	28 33
Distribution System, Operation and Maintenance	422 13	535 79	1,238 36	2,368 26
Line Transformer Maintenance	187 39	113 54	280 22	139 99
Meter "	97 00	360 05	79 67	86 01
Consumers' Premises—Expense	.....	.....	.....	.....
Street Light System, Operation and Maintenance	440 09	274 54	431 92	523 05
Promotion of Business	.....	.....	.....	.....
Billing and Collecting	560 15	543 73	656 75	739 90
General Office, Salaries and Expenses	1,615 40	1,471 88	415 98	568 69
Undistributed Expenses	195 56	71 63	183 85	585 82
Interest and Debenture Payments	5,337 25	5,198 90	4,120 54	7,300 84
Total Expenses	21,650 41	20,918 87	25,588 86	31,309 90
Surplus	8,525 59	7.555 86	9,099 71	5,073 91
Loss	.....	.....	.....	.....
Depreciation Charge	2,862 00	3,168 00	2,924 00	3,400 00
Surplus less Depreciation Charge	5,663 59	4,387 86	6,175 71	1,673 91

"C"—Continued

Hydro Municipalities for the year ending December 31st, 1913 and 1914

Dundas		Goderich	Waterloo		Walkerville	Paris
4,866		4,811	4,737		4,721	4,216
1913	1914	1914	1913	1914	1914	1914
			k		j	
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
3,045 85	5,349 24	7,197 05	4,263 66	4,723 94	3,037 96	4,766 23
4,193 27	4,198 64	4,196 49	5,098 42	4,825 22	1,492 84	2,778 00
3,070 40	4,305 96	1,240 73	14,970 14	13,282 12	6,042 11	1,419 90
60 10	3,050 85	5,525 00	5,294 10	5,137 84	1,716 61	4,103 00
930 81	.....	.....	.....	477 61	.....	.....
11,300 43	16,904 69	18,159 27	29,626 32	28,446 73	12,289 52	13,067 22
3,474 08	4,038 10	6,315 17	11,075 53	9,882 03	6,104 53	4,020 80
.....	.....	1,806 40	1,019 10	924 41	259 76	1,082 57
.....	.....	.....	81 00	182 23	1 75	.....
154 77	840 00	167 83	378 74	794 51	502 81	1,299 26
35 80	74 75	11 25	32 13	42 90	3 00	13 45
4 40	31 18	15 94	54 67	193 53	13 25	.....
.....	84 68	.....	.....	.....	.....	.....
.....	285 34	68 20	1,093 25	459 21	10 58	333 09
.....	789 93	.....	.....	.....	.....	.....
689 51	937 59	343 13	866 90	756 25	562 05	.....
1,642 56	1,876 50	204 85	2,520 00	2,519 64	1,499 11	563 26
.....	138 32	154 40	709 44	323 72	374 34	115 30
1,970 14	4,504 12	4,182 09	3,676 92	3,473 33	1,908 19	5,849 94
7,971 26	13,600 51	13,269 26	21,507 68	19,551 76	11,239 37	13,277 67
3,329 17	3,304 18	4,890 01	8,118 64	8,894 97	1,050 15	.....
.....	.....	.....	.....	.....	.....	210 45
1,508 00	1,675 00	2,920 00	3,100 00	3,500 00	.....	.....
1,821 17	1,629 18	1,970 01	5,018 64	5,394 97	1,050 15	.....

Notes—
"j" 5 months' operation
"k" 13 months' operation

STATEMENT

Comparative Detailed Operating Reports of Electric Departments of

Municipality	Penetanguishene		St. Mary's	
Population	3,963		3,783	
——	1913	1914	1913	1914
EARNINGS				
	$ c.	$ c.	$ c.	$ c.
Domestic Light	1,989 80	1,936 73	3,815 77	4,614 95
Commercial Light	4,511 16	3,064 83	4,553 73	4,733 33
Power	8,775 95	8,001 69	8,221 72	10,610 05
Street Light	2,042 00	2,016 00	3,582 00	3,441 00
Miscellaneous	.....	.....	.....	.....
Total Earnings	17,318 91	15,019 25	20,173 22	23,399 33
EXPENSES				
Power Purchased	6,347 56	7,673 95	10,055 82	8,966 67
Sub-Station Operation	967 84	725 24	728 39	803 25
" " Maintenance	.....	3 25	150 46	195 00
Distribution System, Operation and Maintenance	301 41	166 21	556 05	400 29
Line Transformer Maintenance	236 11	93 51	519 39	350 34
Meter "	.....	178 86	202 56	175 22
Consumers' Premises—Expense	.....	.....	.....	.....
Street Light System, Operation and Maintenance	144 56	335 99	554 36	423 60
Promotion of Business	.....	131 74	.....	.....
Billing and Collecting	44 45	133 00	263 21	257 03
General Office, Salaries and Expenses	1,278 02	1,305 25	1,077 38	994 13
Undistributed Expenses	.....	3 00	75 63	138 54
Interest and Debenture Payments	2,035 90	1,986 09	4,616 15	4,658 00
Total Expenses	11,355 85	12,736 09	18,799 40	17,362 07
Surplus	5,963 06	2,283 16	1,373 82	6,037 26
Loss	.....	.....	.....	.....
Depreciation Charge	1,820 00	1,960 00	.....	3,340 00
Surplus less Depreciation Charge	4,143 06	323 16	1,373 82	2,697 26

"C"—Continued

Hydro Municipalities for the years ending December 31st, 1913 and 1914

Brampton 3,344		Tillsonburg 3,155		Hespeler 3,086		Prescott 2,877
1913	1914	1913	1914	1913	1914	1914
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
5,617 61	6,798 89	2,796 57	3,367 74	2,206 75	2,635 41	7,472 75
3,983 65	4,055 99	4,677 38	4,579 37	1,667 00	1,934 75	996 00
10,557 72	10,658 33	4,763 13	6,303 09	5,044 30	6,116 27	1,099 27
3,500 00	4,200 00	2,601 00	2,463 96	1,500 00	1,478 00	2,500 00
.....	.....	1,163 11	863 28	.....	.....	9 00
23,661 98	25,713 21	16,001 19	17,577 44	10,418 05	12,164 43	12,077 02
11,084 34	11,692 39	6,249 35	6,999 79	5,465 01	4,753 26	1,422 26
26 11	58 58	950 05	753 91	2,101 87	614 43	3,293 49
.....	.....	.....	.....	.....	.....	361 49
231 54	522 54	332 50	570 90	638 83	565 16	767 49
16 00	197 15	4 89	11 55	4 17	54 05	.....
.....	51 31	.....	16 47	.....	.....	116 10
.....	.....	.....	.....	.....	.....	.....
168 79	429 60	205 87	210 50	57 50	111 92	119 00
.....	.....	.....	.....	.....	.....	.....
341 70	794 57	907 04	923 46	.....	.....	37 82
1,694 67	1,904 94	1,064 21	997 04	735 23	1,207 23	1,165 23
371 28	66 47	1,033 61	1,000 00	272 67	112 50	169 62
3,781 42	4,936 36	2,137 07	2,727 41	2,140 19	3,144 33	1,722 31
17,716 05	20,653 91	12,884 59	14,211 21	11,415 47	10,562 88	9,174 81
5,945 93	5,059 30	3,116 60	3,366 23	.....	1,601 55	2,902 21
.....	.....	.....	.....	997 42	.....	.....
2,500 00	3,000 00	1,782 75	1,830 00	.....	1,350 00	1,950 00
3,445 93	2,059 30	1,333 85	1,536 23	.....	251 55	952 21

STATEMENT

Comparative Detailed Operating Reports of Electric Departments of

Municipality	Weston		Elmira	Clinton
Population	2,307		2,134	2,112
——	1913	1914	1914	1914
EARNINGS			k	
	$ c.	$ c.	$ c.	$ c.
Domestic Light	4,117 20	3,741 84	1,968 41	2,023 70
Commercial Light	1,475 74	1,599 97	2,020 81	2,028 08
Power	6,170 36	4,958 59	1,876 49	1,255 33
Street Light	2,052 00	3,067 50	1,680 00	1,105 66
Miscellaneous	24 88	.....	.....	.....
Total Earnings	13,840 18	13,367 90	7,545 71	6,412 77
EXPENSES				
Power Purchased	5,159 49	5,783 87	3,077 56	2,291 20
Sub-Station Operation	.....	.....	.....	911 74
" " Maintenance	.....	.....	.....	.....
Distribution System, Operation and Maintenance	791 77	662 71	.....	80 99
Line Transformer Maintenance	.....	.....	.....	.....
Meter "	.....	.....	.....	.....
Consumers' Premises—Expense	.....	.....	.....	.....
Street Light System, Operation and Maintenance	574 25	451 99	102 55	145 74
Promotion of Business	.....	.....	.....	.....
Billing and Collecting	.....	.....	.....	.....
General Office, Salaries and Expenses	927 35	1,668 62	1,170 47	1,182 42
Undistributed Expenses	79 50	76 17	31 17	32 29
Interest and Debenture Payments	1,588 48	1,588 42	1,425 22	1,838 56
Total Expenses	9,120 84	10,231 78	5,806 97	6,483 14
Surplus	4,719 34	3,136 12	1,738 74	.....
Loss	.....	.....	.....	70 37
Depreciation Charge	1,390 00	1,450 00	650 00	.....
Surplus less Depreciation Charge	3,329 34	1,686 12	1,088 74	.....

Note—
"k" 13 months' operation

C"—Continued

Hydro Municipalities for the year ending December 31st, 1913 and 1914

Milton		Georgetown		Seaforth	
2,053		1,965		1,901	
1913	1914	1913	1914	1913	1914
		f			
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
1,149 28	1,961 22	661 49	3,069 02	2,124 18	2,467 36
1,212 26	2,226 80	842 87	2,362 33	2,876 47	2,581 30
6,462 38	11,325 61	234 32	2,976 61	7,509 99	7,707 01
900 00	1,350 00	541 67	1,843 67	1,815 81	1,869 96
143 18	455 62	.....	.....	61 63	110 14
9,867 10	17,319 25	2,280 35	10,251 63	14,388 08	14,735 77
4,902 34	7,696 45	759 00	4,183 72	7,931 55	8,646 18
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
167 82	609 66	12 85	192 11	1,573 93	1,078 00
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	86 16	201 06	128 09	317 37	638 57
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
42 27	572 05	.....	895 46	368 67	529 05
.....	.....	.....	.....	.....	.....
1,582 93	2,277 04	.....	1,466 55	1,653 65	1,704 25
6,695 36	11,241 36	972 91	6,865 93	11,845 17	12,596 05
3,171 74	6,077 89	1,307 44	3,385 70	2,542 91	2,139 72
.....	.....	.....	.....	.....	.....
900 00	1,250 00	300 00	850 00	1,300 00	1,400 00
2,271 74	4,827 89	1,007 44	2,535 70	1,242 91	739 72

Note—
"f" 4 months' operation

STATEMENT

Comparative Detailed Operating Reports of Electric Departments o

Municipality	Mimico		Mitchell	
Population	1,758		1,746	
/	1913	1914	1913	1914
EARNINGS				
	$ c.	$ c.	$ c.	$ c
Domestic Light	2,021 06	5,085 16	2,424 59	2,470 2
Commercial Light	h	h	2,813 92	2,712 5
Power	795 49	963 64	6,160 53	3,944 9
Street Light	987 00	1,049 34	1,675 00	1,950 0
Miscellaneous	.....	.....	385 50	443 9
Total Earnings	3,803 55	7,098 14	13,459 54	11,521 6
EXPENSES				
Power Purchased	1,740 66	2,801 90	6,858 86	4,882
Sub-Station Operation	.....	.....	12 35	.....
" " Maintenance	.....	.....	.....	.....
Distribution System, Operation and Maintenance	144 79	53 29	81 25	66
Line Transformer Maintenance	.....	.....	.....	.....
Meter "	.....	.....	.....	.....
Consumers' Premises—Expense	.....	.....	.....	.....
Street Light System, Operation and Maintenance	23 89	88 85	44 64	34
Promotion of Business	.....	.....	.....	.....
Billing and Collecting	.....	.....	.....	.....
General Office, Salaries and Expenses	265 61	674 73	1,223 80	1,315
Undistributed Expenses	.....	.....	100 00	.....
Interest and Debenture Payments	845 02	1,561 45	2,224 07	2,224
Total Expenses	3,019 97	5,180 22	10,544 97	8,522
Surplus	783 58	1,917 92	2,914 57	2,999
Loss	.....	.....	.....	.....
Depreciation Charge	740 00	920 00	1,150 00	1,200
Surplus less Depreciation Charge	43 58	997 92	1,764 57	1,799

Note—
"h" Domestic and Commercial light not divided

"C"—Continued

Hydro Municipalities for the year ending December 31st, 1913 and 1914

New Hamburg 1,735		Acton 1,634		Norwich 1,185	
1913	1914	1913	1914	1913	1914
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
1,589 21	1,779 90	1,236 50	1,463 72	1,926 78	2,168 13
1,890 72	1,403 56	1,567 48	1,496 18	1,162 98	995 16
5,792 20	5,209 51	318 77	836 13	1,978 55	1,893 72
1,827 00	1,827 00	1,000 00	1,563 00	1,285 50	1,197 00
325 44	.....	286 72	83 60	46 71	746 92
11,424 57	10,219 97	4,409 47	5,442 63	6,400 52	7,000 93
5,206 00	4,770 26	1,801 50	2,344 50	3,176 24	2,849 30
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
323 40	380 19	371 97	35 42	178 90	464 80
.....	.....	.....	.....	.....	13 48
.....	.....	.....	.....	.....	37 11
.....	.....	.....	.....	.....	.....
.....	.....	7 20	147 12	79 51	95 40
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
1,194 68	995 47	841 70	943 77	838 27	534 15
.....	107 21	.....	.....	.....	.....
1,170 92	1,172 91	442 00	1,124 06	886 40	960 58
7,895 00	7,426 04	3,584 37	4,594 87	5,159 32	4,954 82
3,529 57	2,793 93	825 10	847 76	1,241 20	2,046 11
.....	.....	.....	.....	.....	.....
900 00	900 00	500 00	500 00	500 00	530 00
2,629 57	1,893 93	325 10	347 76	741 20	1,516 11

STATEMENT

Comparative Detailed Operating Reports of Electric Departments of

Municipality	Elora	Port Dalhousie		Caledonia
Population	1,225	1,281		1,175
——	1914	1913	1914	1913
	i	m		
EARNINGS	$ c.	$ c.	$ c.	$ c.
Domestic Light	101 98	3,742 54	3,656 01	404 60
Commercial Light	167 25	h	h	h
Power	.....	347 28	429 54	470 34
Street Light	110 33	1,246 67	880 00	584 00
Miscellaneous	.....	.....	.....	.....
Total Earnings	379 56	5,336 49	4,965 55	1,458 94
EXPENSES				
Power Purchased	133 05	2,393 00	2,407 20	766 70
Sub-Station Operation	.....	.....	.....	.....
" " Maintenance	.....	.....	.....	.....
Distribution System, Operation and Maintenance	.....	253 81	421 83	23 05
Line Transformer Maintenance	.....	.....	.....	.....
Meter "	.....	.....	.....	.....
Consumers' Premises—Expense	.....	.....	.....	.....
Street Light System, Operation and Maintenance	24 78	8 74	65 28	.....
Promotion of Business	.....	.....	.....	.....
Billing and Collecting	.....	.....	.....	.....
General Office, Salaries and Expenses	66 19	302 30	712 50	48 28
Undistributed Expenses	.....	112 98	218 83	.....
Interest and Debenture Payments	125 35	814 89	725 89	134 47
Total Expenses	349 37	4,785 72	4,551 53	972 50
Surplus	30 19	550 77	414 02	486 44
Loss	.....	.....	.....	.....
Depreciation Charge	.....	450 00	414 02	250 00
Surplus less Depreciation Charge	30 19	100 77	.....	236 44

Notes—
"h" Domestic and Commercial light not divided
"i" 1 months' operation
"m" 16 months' operation

"C"—Continued

Hydro Municipalities for the year ending December 31st, 1913 and 1914

Caledonia	Winchester	Stayner		New Toronto	Hagersville	
1,175	1,099	1,033		985	977	
1914	1914	1913	1914	1914	1913	1914
o		n			g	
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
880 54	2,972 09	158 48	909 58	653 56	81 42	1,222 33
h	h	116 91	747 93	h	h	h
188 54	.....	301 86	1,699 08	.....	746 85	2,679 08
780 00	1,500 00	35 00	707 50	600 00	300 00	1,200 00
.....	.....	.....	.....	.....	.....	.....
1,849 08	4,472 09	612 25	4,064 09	1,253 56	1,128 27	5,101 41
669 00	1,827 07	187 52	2,726 45	233 30	967 23	3,084 34
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
92 95	2 32	.....	56 85	50 73	.....	52 15
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
35 80	58 50	.....	96 00	137 85	.....	73 00
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
66 82	173 09	14 48	31 00	318 01	37 69	545 77
.....	.....	.....	.....	.....	.....	.....
122 86	541 80	340 82	784 66	178 44	97 60	383 93
987 43	2,602 78	542 82	3,694 96	918 33	1,102 52	4,139 19
861 65	1,869 31	69 43	369 13	335 23	25 75	962 22
.....	.....	.....	.....	.....	.....	.....
260 00	500 00	.....	115 00	200 00	.....	425 00
601 65	1,369 31	69 43	254 13	135 23	.....	537 22

Notes —
"h" Domestic and Commercial light not divided
"g" 3 months' operation
"n" 2 months' operation
"o" 10 months' operation

STATEMENT

Comparative Detailed Operating Reports of Electric Departments of

Municipality	Pt. Credit		Pt. Stanley	
Population	944		934	
——	1913	1914	1913	1914
EARNINGS				
	$ c.	$ c.	$ c.	$ c.
Domestic Light	1,963 22	2,461 42	1,828 66	2,066 41
Commercial Light	c	c	1,771 70	1,753 60
Power	848 59	308 88	2,418 00	2,170 88
Street Light	696 00	810 60	2,199 50	1,961 35
Miscellaneous	.....	.....	.....	157 77
Total Earnings	3,507,81	3,580 90	8,217 86	8,110 01
EXPENSES				
Power Purchased	1,210 65	1,333 00	3,506 43	3,682 26
Sub-Station Operation	.....	.....	.....	.....
" " Maintenance	.....	.....	.....	.....
Distribution System, Operation and Maintenance	22 21	23 51	354 49	116 92
Line Transformer Maintenance	.....	.....	.....	.....
Meter "	.....	.....	.....	.....
Consumers' Premises—Expense	.....	.....	.....	.....
Street Light System, Operation and Maintenance	121 27	72 77	.....	.....
Promotion of Business	.....	.....	.....	.....
Billing and Collecting	.....	.....	292 81	286 23
General Office, Salaries and Expenses	171 82	450 67	368 47	581 96
Undistributed Expenses	.....	18 46	.....	.....
Interest and Debenture Payments	534 23	571 55	1,188 91	1,232 82
Total Expenses	2,060 18	2,469 96	5,711 11	5,900 19
Surplus	1,447 63	1,110 94	2,506 75	2,209 82
Loss	.....	.....	.....	.....
Depreciation Charge	446 00	535 00	617 75	950 00
Surplus less Depreciation Charge.	1,001 63	575 94	1,889 00	1,259 82

Note—
"c" Domestic and Commercial light not divided

C"—Continued

Hydro Municipalities for the years ending December 31st, 1913 and 1914

Chesterville	Waterdown		Elmvale		Baden	
831	805		775		710	
1914	1913	1914	1913	1914	1913	1914
			w			
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
530 13	1,164 29	1,054 13	284 34	673 18	884 11	1,247 81
791 67	h	535 83	358 60	896 11	h	h
.....	917 63	1,011 38	.....	438 38	2,242 77	4,580 23
465 00	435 00	510 00	302 00	624 00	830 95	705 68
.....	.....	418 46	.....	.....	.....	.....
1,786 80	2,516 94	3,529 80	944 94	2,631 67	3,957 83	6,533 72
1,107 66	988 00	1,660 71	506 33	898 78	2,807 04	4,541 56
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
.....	183 71	67 66	7 86	326 94	28 84	179 28
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
.....	35 31	48 15	.....	.....	.....	14 52
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
59 00	213 14	207 87	75 12	434 67	267 45	389 45
.....	.....	.....	.....	.....	.....	.....
344 00	521 56	723 09	449 76	434 67	325 26	325 26
1,510 66	1,941 72	2,707 48	1,039 07	2,108 42	3,428 59	5,450 07
276 14	575 22	822 32	.....	523 25	529 24	1,083 65
.....	.....	.....	94 13	.....	.....	.....
247 50	365 00	420 00	.....	350 00	277 00	280 00
28 64	210 22	402 32	.....	173 25	252 24	803 65

Notes —
"h" Domestic and Commercial light not divided
"w" 6 months' operation

STATEMENT

Comparative Detailed Operating Reports of Electric Departments of

Municipality	Creemore	Beachville		Rockwood
Population	590	501		650
——	1914	1913	1914	1913
	n	x		f
EARNINGS				
	$ c.	$ c.	$ c.	$ 7c.
Domestic Light	97 31	562 37	587 33	230 27
Commercial Light	127 31	c	c	c
Power	39 60	5,993 81	5,368 04	480 82
Street Light	138 80	206 03	430 00	196 00
Miscellaneous	.....	.....	.....	.....
Total Earnings	403 02	6,762 21	6,385 37	907 09
EXPENSES				
Power Purchased	162 00	4,221 68	3.283 89	237 50
Sub-Station Operation	.....	.....	.....	.....
" " Maintenance	.....	.....	.....	.....
Distribution System, Operation and Maintenance	.....	54 34	34 85	.....
Line Transformer Maintenance	.....	.....	.....	.....
Meter "	.....	.....	.....	.....
Consumers' Premises—Expense	.....	.....	.....	.....
Street Light System, Operation and Maintenance	.....	76 37	43 92	.....
Promotion of Business	.....	.....	.....	.....
Billing and Collecting	.....	.....	.....	.....
General Office, Salaries and Expenses	6 14	249 50	193 11	44 46
Undistributed Expenses	.....	127 62	29 18	.....
Interest and Debenture Payments	20 59	288 88	501 45	357 49
Total Expenses	188 73	5,018 39	4,086 40	639 45
Surplus	214 29	1,743 82	2,298 97	267 64
Loss	.....	.....	.....	.....
Depreciation Charge	.....	525 00	400 00	.....
Surplus less Depreciation Charge	214 29	1,218 82	1,898 97	267 64

Notes —
"h" Domestic and Commercial light not divided
"f" 4 months' operation
"g" 3 months' operation
"n" 2 months' operation
"x" 24 months' operation

"C"—Continued

Hydro Municipalities for the year ending December 31st, 1913 and 1914

Rockwood 650	Coldwater 609		Thamesford 400	Thorndale 257	Toronto Township
1914	1913	1914	1914	1914	1914
			o	o	p
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
848 55	735 68	853 56	393 49	446 27	8,151 12
h	h	589 85	323 92	h	.....
1,542 01	247 19	617 26	946 32	329 27	.....
549 50	532 00	528 00	372 16	294 00	.....
.....	.....	.....	.....	.....	.....
2,940 06	1,514 87	2,588 67	2,035 89	1,069 54	8,151 12
1,113 49	535 86	897 12	1,031 10	510 00	3,085 55
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	74 58	139 37	9 80	5 25	284 02
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
36 14	32 92	32 00	23 68	29 04	.....
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
119 55	1 50	68 00	125 94	94 12	374 61
.....	.....	.....	.....	.....	.....
413 19	.....	481 64	249 94	109 92	1,358 65
1,682 37	644 86	1,618 13	1,440 46	748 33	5,102 83
1,257 69	870 01	970 54	595 43	321 21	3,048 29
.....	.....	.....	.....	.....	.....
275 00	375 00	380 00	250 00	130 00	.....
982 69	495 01	590 54	345 43	191 21	3,048 29

Notes —
"h" Domestic and Commercial light not divided
"o" 10 months' operation
"p" 17 months' operation

STATEMENT "D"

Report Showing Comparative Revenue and Number of Consumers in Municipalities in which Hydro Power has been in use for Two Years or More.

Municipality	Year	Revenue				Consumers			
		Domestic Lt.	Commercial Lt.	Power	Street Lt.	Domestic	Commerc'l	Power	Total
		$ c.	$ c.	$ c.	$ c.				
Toronto	1912	201,554 74	*	225,451 55	275,666 23	11,441	*	518	11,959
	1913	190,376 89	233,799 04	347,708 88	344,933 79	16,519	4,764	1,037	22,320
	1914	289,645 45	305,534 31	483,681 15	364,214 17	23,181	6,276	1,494	30,951
Hamilton	1913	34,451 95	25,453 99	47,415 58	2,250 89	5,117	924	209	6,250
	1914	74,668 38	35,125 57	70,665 43	51,154 36	8,404	1,375	337	10,116
Ottawa	1912	62,598 18	51,365 91	25,299 94	40,970 21	5,390	440	90	5,920
	1913	68,032 27	53,438 04	26,978 76	49,199 56	5,766	818	152	6,736
	1914	68,767 48	51,769 72	31,748 23	33,895 95	6,342	852	156	7,350
London	1912	28,196 62	28,527 44	52,633 00	29,270 00	3,851	792	158	4,801
	1913	41,932 42	39,256 07	79,758 96	28,372 00	5,201	1,007	198	5,406
	1914	57,473 08	47,593 44	130,936 35	30,535 83	6,299	1,075	249	7,649
Berlin	1912	14,585 02	19,080 32	28,654 23	12,387 63	1,022	422	105	1,549
	1913	15,291 37	19,548 91	35,655 90	16,155 75	1,291	470	127	1,888
	1914	17,757 08	19,549 45	49,173 17	16,544 11	1,694	519	130	2,343
Pt. Arthur	1913	81,830 66	*	51,748 11	14,709 41	2,409	500	55	2,964
	1914	38,097 65	32,933 91	92,804 49	15,458 88	2,969	550	55	3,574
St. Thomas	1912	7,596 01	18,741 74	14,761 30	12,208 30	620	300	60	980
	1913	11,125 50	16,097 41	36,550 26	10,989 72	951	329	70	1,350
	1914	13,221 00	13,480 75	44,247 13	11,025 36	1,499	384	92	1,975
Stratford	1912	6,942 56	14,661 16	8,834 40	12,120 00	640	316	76	1,032
	1913	11,550 71	17,072 61	14,272 59	12,120 00	1,042	367	92	1,501
	1914	15,180 91	16,336 30	16,519 24	12,120 00	1,403	396	99	1,898
Guelph	1912	10,251 87	16,400 57	30,139 00	11,000 00	960	345	73	1,378
	1913	11,528 07	15,075 61	42,091 34	9,500 04	1,260	400	85	1,745
	1914	16,920 54	15,923 51	38,148 46	9,590 66	1,573	441	80	2,094
Galt	1912	8,183 69	9,732 86	10,042 59	5,000 70	830	250	47	1,127
	1913	10,535 38	11,648 49	16,575 61	6,280 25	1,122	353	65	1,540
	1914	15,797 16	11,952 75	23,826 87	8,500 00	1,745	339	70	2,154
Woodstock	1912	4,914 92	13,316 02	21,087 61	5,400 00	464	265	43	772
	1913	6,495 02	12,942 32	20,262 52	7,160 00	636	282	55	973
	1914	8,807 40	11,610 14	19,832 26	7,320 00	949	337	57	1,343
Barrie	1913	10,071 55	9,252 70	3,390 29	4,292 53	563	200	13	776
	1914	11,149 49	9,464 64	3,712 24	4,572 75	651	200	13	864
Welland	1913	1,369 67	558 46	4,307 21	1,395 00	408	53	18	479
	1914	4,411 20	1,676 38	8,305 71	5,049 00	492	53	23	568
Collingwood	1913	7,013 66	9,362 17	896 72	3,802 88	477	220	18	715
	1914	7,857 86	7,555 54	5,165 39	4,647 00	554	232	21	807
Midland	1912	5,878 05	5,878 05	3,188 03	3,777 65	420	165	18	603
	1913	6,095 11	6,104 16	5,700 22	3,433 07	191	172	25	688
	1914	6,941 07	5,084 06	6,484 43	3,728 76	621	176	32	829
Ingersoll	1912	3,073 73	6,648 28	14,430 66	3,000 00	220	142	38	400
	1913	3,595 03	6,048 51	15,293 44	4,262 03	278	170	44	492
	1914	5,085 32	6,359 72	12,818 27	3,960 04	416	194	48	658
Preston	1912	4,234 68	5,237 99	15,478 14	2,585 00	341	131	21	492
	1913	5,477 10	5,366 77	21,017 68	2,594 55	526	151	28	705
	1914	6,520 39	5,011 15	21,975 26	2,778 48	629	165	29	823
Dundas	1913	3,045 85	4,193 27	3,070 40	60 10	377	134	27	538
	1914	5,349 24	4,198 64	4,305 96	3,050 85	520	153	30	703
Waterloo	1912	4,057 46	4,524 93	11,545 93	4,538 82	239	112	35	386
	1913	4,263 66	5,098 42	14,970 14	5,294 10	321	125	44	490
	1914	4,723 94	4,825 22	13,282 14	5,137 84	430	153	51	634
Penetang	1912	1,676 26	3,836 30	2,207 51	1,962 00	101	87	13	201
	1913	1,989 80	4,511 16	8,775 95	2,042 00	128	91	15	234
	1914	1,936 73	3,064 83	8,001 69	2,016 00	153	100	15	268
St. Mary's	1912	4,967 16	4,039 20	6,001 30	3,449 50	240	143	20	403
	1913	3,815 77	4,553 73	8,221 72	3,582 00	396	160	29	588
	1914	4,614 95	4,733 33	10,610 05	3,441 00	454	161	30	645

STATEMENT "D"—Continued

Report Showing Comparative Revenue and Number of Consumers in Municipalities in which Hydro Power has been in use for Two Years or More.

Municipality	Year	Revenue				Number of Consumers			
		Domestic Lt.	Commercial Lt.	Power	Street Lt.	Domestic	Comm'l	Power	Total
		$ c.	$ c.	$ c.	$ c.				
Brampton	1912	3,004 66	2,893 74	3,531 34	3,500 00	409	104	12	525
	1913	5,617 61	3,986 65	10,557 72	3,500 00	643	138	16	797
	1914	6,798 89	4,055 99	10,658 33	4,200 00	627	174	21	822
Tillsonburg ...	1912	3,233 92	3,350 91	3,283 75	3,073 50	200	128	6	334
	1913	2,796 57	4,677 38	4,763 15	2,601 00	254	143	17	414
	1914	3,367 74	4,579 37	6,303 09	2,463 96	300	160	16	476
Hespeler.....	1913	2,189 00	1,684 75	5,044 30	1,500 00	174	76	11	261
	1914	2,635 41	1,934 75	6,116 27	1,478 00	229	85	13	327
Weston.....	1912	3,979 81	750 00	1,674 28	1,788 00	225	15	4	344
	1913	4,117 20	1,475 74	6,166 97	2,052 00	360	34	6	400
	1914	3,741 84	1,599 97	4,958 59	3,067 50	352	78	10	440
Milton.....	1913	1,149 28	1,212 26	6,462 38	900 00	110	74	5	189
	1914	1,961 22	2,226 80	11,325 61	1,350 00	150	79	6	235
Georgetown ..	1913	661 49	842 87	234 32	541 67	160	120	5	285
	1914	3,069 02	2,362 33	2,976 61	1,843 67	242	75	17	334
Seaforth.....	1913	2,124 18	2,876 47	7,509 99	1,815 81	178	105	10	293
	1914	2,467 36	2,581 30	7,707 01	1,869 96	211	112	10	333
Mimico	1913	2,021 06	*	795 49	987 00	250	.....	5	255
	1914	5,085 16	*	963 64	1,049 34	462	10	5	477
Mitchell	1912	2,964 48	2,977 08	4,597 03	1,375 00	159	79	13	251
	1913	2,362 52	2,813 92	6,160 53	1,675 00	179	85	16	270
	1914	2,470 29	2,712 55	3,944 91	1,950 00	191	100	16	307
New Hamburg.	1912	1,195 08	1,423 35	3,369 05	1,627 00	124	63	5	192
	1913	1,589 21	1,890 72	5,792 20	1,827 00	142	63	8	213
	1914	1,779 90	1,403 56	5,209 51	1,827 00	170	68	6	244
Acton	1913	1,236 50	1,567 48	318 77	1,000 00	82	62	3	147
	1914	1,463 72	1,496 18	836 13	1,563 00	146	58	5	209
Norwich	1912	862 17	674 48	263 93	591 00	128	64	2	194
	1913	1,926 78	1,162 98	1,978 55	1,285 50	166	76	3	245
	1914	2,168 13	995 16	1,893 72	1,197 00	198	84	3	285
Pt. Dalhousie.	1913	3,742 54	*	347 28	1,246 67	238	*	3	241
	1914	3,656 01	*	429 54	880 00	240	10	3	253
Caledonia.....	1913	404 60	*	470 34	584 00	17	16	1	34
	1914	880 54	*	188 54	780 00	21	32	1	54
Stayner	1913	158 48	116 91	301 86	35 00	120	30	2	152
	1914	909 58	747 93	1,699 08	707 50	108	56	2	156
Hagersville ...	1913	81 92	*	746 85	300 00	3	24	3	30
	1914	1,222 23	*	2,679 08	1,200 00	70	60	3	133
Pt. Credit	1913	1,963 22	*	848 59	696 00	93	21	2	116
	1914	2,461 42	*	308 88	810 00	125	35	2	162
Pt. Stanley ...	1912	897 02	1,106 63	1,314 70	1,545 10	122	40	3	165
	1913	1,828 06	1,771 70	2,418 00	2,199 50	182	60	9	251
	1914	2,066 41	1,753 60	2,170 83	1,961 35	229	72	12	313
Waterdown ...	1912	774 40	340 00	614 42	375 83	41	20	2	63
	1913	1,003 09	361 20	917 65	435 00	70	34	2	106
	1914	1,054 13	535 83	1,011 38	510 00	71	34	5	110
Elmvale.....	1912	284 34	358 60	.....	302 00	52	52	1	105
	1914	673 18	896 11	438 38	624 00	57	48	2	107
Baden.....	1913	884 11	*	2,242 77	830 95	75	*	4	79
	1914	1,247 81	*	4,580 23	705 68	82	*	4	86
Beachville	1913	562 97	*	5,993 81	206 03	45	*	4	49
	1914	587 33	*	5,368 04	430 00	45	*	4	49
Rockwood	1913	230 27	*	480 82	196 00	48	9	1	58
	1914	848 55	*	1,542 01	549 50	54	7	3	64
Coldwater	1913	405 43	330 25	247 19	532 00	48	32	1	81
	1914	853 56	589 85	617 26	528 00	62	39	2	103

*Domestic and Commercial light not separated.

STATEMENT "E"

Street Light Installation in Hydro Municipalities, December 31st, 1914, showing Cost per Year, Cost per Lamp, and Cost per Capita.

Municipality	Population	No. of Arc Lights	Cost per Arc	Number of Incandescents	Size of Lamp	Cost per Incandescents	Total Revenue	Cost per Capita
			$ c.			$ c.	$ c.	$ c.
Toronto	445,575	....	....	40,594	100 watt	9 00	364,214 17	81
Hamilton	100,808	a 401	50 00	869 7,216 28	250 watt 100 " 40 to 150	13 75 8 00 8 00	51,146 90	50
Ottawa	100,180	720	45 00	234 2,870*	100 watt 100 "	10 00 60c. foot frontage	50,439 29	50
London	55,026	....	....	39 2,293 497	75 " 75 " 100 "	8 00 11 00 12 85	30,535 83	55
Brantford	26,454	147	40 00	2,847	100 "	8 00	21,724 64	82
Windsor	22,080	a 246	50 00	1,592	100 watt	12 00	3,997 85	b
Peterboro'	20,150	151 54	50 00 50 50	202	100 watt	12 00	3,081 59	c
Berlin	18,338	....	....	1,811	100 "	9 00	16,544 11	90
Port Arthur	18,025	....	....	1,582 708	100 " 50 "	8 30 5 00	15,458 88	94
St. Thomas	16,794	44	53 00	953 380	75 " 30 "	10 00 5c.kw-hr	11,025 36	65
Stratford	16,425	a 180	....	700	75 "	....	12,120 00	74
Guelph	16,319	....	....	1,070	100 "	9 00	9,590 66	58
St. Catharines	16,186	....	....	721	100 "	8 00	944 63	c d
Galt	11,932	a 77	....	40 789 369	60 " 75 " 100 "	8 50	8,500 00	71
Woodstock	10,154	....	....	50 484 172	250 " 100 " 60 "	25 00 10 00 10 00	7,320 00	72
Barrie	7,215	....	....	400	100 "	12 00	4,572 75	63
Welland	7,208	....	....	345 96	100 " 250 "	9 00 18 00	5,049 00	70
Collingwood	6,645	....	....	390	100 "	12 00	4,647 00	70
Midland	6,253	16	35 00	235 36	100 " 50 "	13 50 3 60	3,728 26	60
Ingersoll	5,149	....	....	252 76	80 " 100 "	12 00 12 50	3,960 04	77

NOTES—"a" Nitrogen filled lamps. "b" 4 months operation. "c" 3 months operation.
"d" Partial service only. * Installed on local improvement plan.

STATEMENT "E"—Continued

Street Light Installation in Hydro Municipalities, December 31st, 1914, showing Cost per Year, Cost per Lamp, and Cost per Capita.

Municipality	Population	No. of Arc Lights	Cost per Arc	Number of Incandescents	Size of Lamps	Cost per Incandescent	Total Revenue	Cost per Capita
			$ c.			$ c.	$ c.	$ c.
Preston	4,923	....	....	203 46	50 watt 100 "	11 00 12 00	2,778 48	56
Goderich	4,811	....	....	16-3 lt. std. 8-1 " " 8-1 " " 275	.... 100 watt	55 00 40 00 25 00 15 00	5,525 00	1 15
Dundas	4,866	....	....	300	100 "	9 00	2,450 81	51
Waterloo	4,737	....	....	44-5 lt. std. 8-3 " " 418 14	.... 75 watt 150 "	40 00 25 00 8 75 10 50	5,137 84	1 09
Walkerville	4,721	....	....	435	60 "	10 50	1,716 61	e
Paris	4,216	....	....	350 23	100 " 100 "	11 00	4,103 00	97
Penetang	3,963	....	....	170	100 "	12 00	2,016 00	51
St. Mary's	3,783	41	65 00	60 28	60 " 250 "	13 00 25 00	3,441 00	91
Brampton	3,344	....	....	525	100 "	8 00	4,200 00	1 25
Tillsonburg	3,155	....	....	224	75 "	11 00	2,463 96	79
Hespeler	3,096	....	....	125	75 "	12 00	1,478 00	49
Prescott	2,877	....	....	356	100 watt	.....	2,500 00	87
Weston	2,307	....	....	207 8 clusters	100 watt	12 00 40 00	2,704 00	1 18
Elmira	2,134	....	....	142	100 watt	12 00	1,680 00	79
Clinton	2,112	....	....	132	60 "	12 50	1,105 66	52
Milton	2,053	....	....	150	100 "	9 00	1,350 00	67
Georgetown	1,965	....	....	141	100 "	12 50	1,762 50	89
Seaforth	1,901	....	....	10 70 60	75 " 75 " 100 "	13 00 12 00 15 00	1,869 96	97
Mimico	1,758	....	....	109	100 "	11 00	1,049 34	60
Mitchell	1,746	....	....	145	100 "	12 00	1,950 00	1 11

"e" 5 months operation.

STATEMENT "E"—Continued

Street Light Installation in Hydro Municipalities, December 31st, 1914, showing Cost per Year, Cost per Lamp, and Cost per Capita.

Municipality	Population	No. of Arc Lights	Cost per Arc	Number of Incandescents	Size of Lamp	Cost per Incandescents	Total Revenue	Cost per Capita
			$ c.			$ c.	$ c.	$ c.
New Hamburg.	1,735	....	....	208	100 watt	9 00	1,827 00	1 05
Acton	1,634	....	....	108	100 "	15 00	1,563 00	95
Fergus.....	1,587	....	....	119	100 "	12 50	....	..
Norwich.....	1,185	....	....	60 53	60 " 100 "	9 00 12 00	1,197 00	1 01
Elora	1,225	....	....	80	100 "	12 50	....	..
Pt. Dalhousie .	1,280	....	....	....	.....	....	880 00	70
Caledonia	1,175	....	....	59	100 watt	12 00	780 00	70
Winchester...	1,099	....	....	100	100 "	15 00	1,500 00	1 35
Stayner.....	1,033	....	....	46 15	60 " 100 "	9 00 12 00	707 50	69
Beaverton....	1,015	....	....	....	.....	13 00	....	..
New Toronto .	985	....	....	50	100 watt	12 00	600 00	61
Hagersville...	977	....	....	100	100 "	12 00	1,200 00	1 22
Pt. Credit	944	....	....	79	100 "	11 00	810 60	89
Cannington...	934	....	....	....	.....	13 00	....	..
Pt. Stanley...	849	....	....	111 47	100 watt 100 "	16 00 summer	1,961 35	..
Chesterville ..	833	....	....	53	100 watt	13 00	465 00	55
Waterdown...	805	....	....	56	100 "	10 00	510 00	62
Elmvale.....	775	....	....	52	100 "	12 00	624 00	80
Baden.....	710	....	....	58	100 "	12 00	705 68	1 00
Sunderland...	600	....	....	....	.....	....	....	....

STATEMENT "E"—Continued

Street Light Installation in Hydro Municipalities, December 31st, 1914, showing Cost per Year, Cost per Lamp, and Cost per Capita.

——	Population	No. of Arc Lights	Cost per Arc	Number of Incandescents	Size of Lamp	Cost per Incandescents	Total Revenue	Cost per Capita
			$ c.			$ c.	$ c.	$ c.
Creemore.....	590	....	....	52	100 watt	12 50	....	..
Beachville....	501	....	....	43	100 "	10 00	430 00	86
Woodville	500	....	....	....	.....	....	....	..
Rockwood	650	....	....	42	100 watt	13 00	549 50	87
Coldwater	609	....	....	44	100 "	12 00	528 00	88
Thamesford ..	400	....	....	29	100 "	14 00	372 16	93
Thorndale....	257	....	....	21	100 "	14 00	294 00	1 12

STATEMENT "F"

Cost per Kw-hr. of Domestic and Commercial Light, including Floor Space and Installed Capacity Charges; and Estimated Saving in 1914 to Hydro Light Users of Ontario Municipalities from Rate Reductions due to Hydro Service

Municipality	Service	Consumption Kw-hr.	Cost per Kw-hr.	Total Cost	Old Rate Kw-hr.		Cost of Present Consumption at Old Rate	Saving in Year's Use	Total Saving
				$ c.			$ c.	$ c.	$ c.
Toronto	Dom.	6,240,882	4.53	282,672 19	8.	+25c.	558,820 56	276,148 37	908,060 58
	Com.	7,683,589	3.9	301,878 47	12.	+25c.	933,790 68	631,912 21	
Hamilton ...	Dom.	1,856,627	4.	74,075 30	8.	+25c.	168,810 16	94,734 86	164,630 14
	Com.	1,309,863	3.4	34,893 76	8.		104,789 04	69,895 28	
Ottawa	Dom.	1,376,353	5.	68,767 48	7.2	+8.33	105,151 41	36,383 93	61,865 14
	Com.	1,061,263	4.9	51,769 72	7.2	+8.33	77,250 93	25,481 21	
London	Dom.	1,192,000	4.8	57,473 08	9.	+25c.	124,530 00	67,056 92	164,786 88
	Com.	1,580,000	3.	47,593 04	9.	+25c.	145,323 00	97,729 96	
Brantford ..	Dom.	148,427	4.8	7,103 77	7.65	+13.5	12,073 94	4,970 17	12,494 42
	Com.	166,469	3.6	5,392 87	7.65	+13.5	12,917 12	7,524 25	
Berlin.....	Dom.	359,307	4.9	17,757 08	10.8	+25c.	43,305 15	25,548 07	68,347 66
	Com.	562,630	3.5	19,549 45	10.8	+25c.	62,349 04	42,799 59	
St. Thomas.	Dom.	277,539	4.8	13,221 00	11.		30,529 29	17,308 29	41,996 88
	Com.	346,994	3.9	13,480 75	11.		38,169 34	24,688 59	
Stratford...	Dom.	269,459	5.5	15,180 91	12.	+25c.	36,067 08	20,086 17	46,372 55
	Com.	345,639	4.7	16,336 30	12.	+25c.	42,622 68	26,286 38	
Guelph	Dom.	286,032	5.9	16,920 54	8.	-15c.	25,431 36	8,510 82	19,349 71
	Com.	325,080	4.9	15,923 51	8.	-15c.	26,762 40	10,838 89	
St. Catharines	Dom.	53,572	3.7	2,013 49	7.		3,750 04	1,736 55	2,922 81
	Com.	22,843	1.8	412 75	7.		1,599 01	1,186 26	
Galt.....	Dom.	300,121	5.3	15,797 16	11.		33,013 31	17,216 15	37,147 67
	Com.	289,857	4.1	11,952 75	11.		31,884 27	19,931 52	
Woodstock..	Dom.	169,054	5.2	8,807 40	8.	-20c.	15,425 12	6,617 72	18,950 14
	Com.	289,982	4.	11,610 14	8.	+20c.	23,942 56	12,332 42	
Barrie.....	Dom.	152,095	7.3	11,149 49	9.		136,855 55	2,539 06	5,679 74
	Com.	138,948	6.8	9,464 64	9.		12,505 32	3,140 68	
Welland. ..	Dom.	117,328	3.7	4,411 20	8.	-25c.	10,736 24	6,325 04	9,963 58
	Com.	64,449	2.6	1,676 38	8.	+25c.	5,314 92	3,638 54	
Collingwood	Dom.	103.598	7.6	7,857 06	10.	+15c.	11,286 80	3,429 74	8,608 60
	Com.	124.276	6.1	7,555 54	10.	+15c.	12,834 40	5,178 86	
Midland....	Dom.	127,397	5.5	6,941 07	8.5	+15c.	11,829 54	4,888 47	10,066 59
	Com.	117,741	4.3	5,048 06	8.5	+15c.	10,226 18	5,178 12	
Ingersoll ...	Dom.	68,342	7.5	5,085 82	8.	-25c.	6,508 36	1,422 54	4,143 94
	Com.	106,689	5.9	6,359 72	8.	+25c.	9,081 12	2,721 40	
Preston	Dom.	108,257	6.	6,520 39	10.	+18c.	12,072 02	5,551 63	11,549 26
	Com.	106,675	4.7	5,011 15	10.	+18c.	11,008 78	5,997 63	
Dundas.....	Dom.	92,168	5.8	5,349 24	10.	+25c.	10,566 80	5,217 56	19,442 92
	Com.	119,947	3.5	4,198 64	15.	+25c.	18,424 00	14,225 36	
Goderich ...	Dom.	83,805	8.6	7,197 05	9.		7,542 45	345 40	2,618 71
	Com.	79,874	5.3	4,196 49	9.		6,469 80	2,273 31	
Waterloo...	Dom.	85,199	5.5	4,723 94	10.8	+22.5	10,214 60	5,490 66	8,162 96
	Com.	98,924	5.	4,825 22	7.2	+22.5	7,497 52	2,672 30	
Paris.....	Dom.	65,037	7.3	4,766 23	7.	+10c.	4,912 59	146 56	2,877 11
	Com.	65,108	4.3	2,778 09	8.	+20c.	5,508 64	2,730 55	
Penetang ...	Dom.	35,163	5.5	1,936 73	10.	+25c.	3,936 30	1,999 57	7,085 44
	Com.	78,657	3.9	3,064 83	10.	+25c.	8,150 70	5,085 87	
St. Mary's..	Dom.	67,375	6.7	4,614 95	9.	+15c.	6,828 75	2,213 80	10,841 60
	Com.	145,257	3.3	4,733 33	9.	+15c.	13,361 13	8,627 80	
Brampton ..	Dom.	142,178	4.9	6,798 89	9.	+15c.	13,939 02	7,140 13	12,522 53
	Com.	101,751	4.	4,055 99	9.	+15c.	9,438 39	5,382 40	
Tillsonburg.	Dom.	45,937	7.3	3,367 74	11.	+25c.	5,893 07	2,525 33	7,005 11
	Com.	78,265	5.9	4,579 37	11.	+25c.	9,059 15	4,479 78	
Hespeler....	Dom.	34,848	7.6	2,635 41	10.	-15c.	3,844 80	1,209 39	3,016 54
	Com.	35,979	5.4	1,934 75	10.	+15c.	3,741 90	1,807 15	

STATEMENT "F"—Continued

Cost per Kw-hr. of Domestic and Commercial Light, including Floor Space and Installed Capacity Charges; and Estimated Saving in 1914 to Hydro Light Users of Ontario Municipalities from Rate Reductions due to Hydro Service

Municipality	Service	Consumption Kw-hr	Cost per Kw-hr.	Total Cost	Old Rate Kw-hr.	Cost of Present Consumption at Old Rate	Saving in Year's Use	Total Saving
				$ c.		$ c.	$ c.	$ c.
Weston.....	Dom.	79,766	4.7	3,741 84	7.2+22.5	6,688 15	2,946 31	3,425 27
	Com.	26,774	.6	1,599 97	7.2+22.5	2,078 93	478 96	
Elmira	Dom.	20,875	9.5	1,968 41	11.4+10c.	2,559 75	591 34	1,878 39
	Com.	28,490	7.1	2,020 81	11.4+10c.	3,307 86	1,287 05	
Clinton.....	Dom.	21,466	9.4	2,023 70	10. +25c.	2,484 10	460 40	1,014 42
	Com.	24,696	8.2	2,028 08	10. +25c.	2,582 10	554 02	
Milton.....	Dom.	25,649	7.6	1,961 22	10.	2,564 90	603 68	2,478 38
	Com.	41,015	5.4	2,226 80	10.	4,101 50	1,874 70	
Georgetown.	Dom.	42,328	7.2	3,069 02	10. +10c.	4,472 80	1,403 78	2,115 85
	Com.	29,544	8.	2,362 33	10. +10c.	3,074 40	712 07	
Seaforth....	Dom.	37,453	6.8	2,467 36	10.8+18c.	4,476 82	2,009 46	4,181 36
	Com.	45,492	5.6	2,581 30	10. +17c.	4,753 20	2,171 90	
Mimico.....	Dom.	91,184	5.4	5,085 16	8. +25c.	8,651 68	3,566 52	3,566 52
	Com.	3,462	5.4	.....	.....	.....	.....	
New Hamburg.....	Dom.	23,010	7.7	1,779 90	10.	2,301 00	521 10	1,057 94
	Com.	19,404	7.2	1,403 56	10.	1,940 40	536 84	
Acton	Dom.	21,192	6.9	1,463 72	10.	2,119 20	655 48	1,147 10
	Com.	19,878	7.5	1,496 18	10.	1,987 80	491 62	
Norwich....	Dom.	40,578	5.4	2,168 13	10. +15c.	4,387 20	2,219 07	2,927 91
	Com.	15,690	6.4	995 16	10. +15c.	1,704 00	708 84	
Caledonia* .	Dom.	16,788	5.2	880 54	.....	.....	.....	.....
	Com.		5.2		.....	.....	.....	.....
Stayner	Dom.	9,200	9.9	909 58	.....	.....	.....	.....
	Com.	11,100	6.7	747 93	.....	.....	.....	.....
New Toronto*....	Dom.	11,947	5.5	653 56	.....	.....	.....	.....
	Com.		5.5		.....	.....	.....	.....
Hagersville*	Dom.	16,053	5.4	1,222 33	.....	.....	.....	.....
	Com.	6,446	5.4		.....	.....	.....	.....
Pt. Credit*.	Dom.	41,862	6.	2,461 42	.....	.....	.....	.....
	Com.		6.		.....	.....	.....	.....
Chesterville*.....	Dom.	7,672	6.9	530 13	.....	.....	.....	.....
	Com.	10,176	7.7	791 67	.....	.....	.....	.....
Waterdown*....	Dom.	13,360	7.9	1,054 13	.....	.....	.....	.....
	Com.	8,321	6.5	535 83	.....	.....	.....	.....
Elmvale ..*	Dom.	6,856	9.9	673 18	.....	.....	.....	.....
	Com.	15,402	5.8	896 11	.....	.....	.....	.....
Baden ..*..	Dom.	6,920	10.	1,247 81	.....	.....	.....	.....
	Com.	5,547	10.		.....	.....	.....	.....
Beachville*.	Dom.	4,422	7.9	587 33	.....	.....	.....	.....
	Com.	2,988	7.9		.....	.....	.....	.....
Rockwood *.	Dom.	7,824	8.8 ..	.....	.....	.....	.....	.....
	Com.	1,768	8.8	848 55	.....	.....	.....	.....
Coldwater*.	Dom.	12,466	6.8	853 56	.....	.....	.....	.....
	Com.	10,382	5.7	589 85	.....	.....	.....	.....
Thamesford*....	Dom.	3,686	10.9	393 49	.....	.....	.....	.....
	Com.	3,445	9.4	323 92	.....	.....	.....	.....
Thorndale *.	Dom.	2,707	7.8	446 27	.....	.....	.....	.....
	Com.	2,989	7.8		.....	.....	.....	.....

Average cost per Kw-hr., Domestic Light ..... 4.8 ct.
" " " " Commercial Light..... 3.9 "

Approximate saving to Hydro Light users during the year, based on present consumption at old rates..... $1,694,300

NOTE—*No electric service prior to Hydro installation.

STATE

Power Rates in

Municipality	Note	Cost of Power to Municipality per H.P. per Year				1912				
						Flat Rates		Differential		
		1912	1913	1914	1915	1st 10 H.P. per H.P. per Year	All Add'l per H.P. per Year	1st 10 H.P. per H.P. per Month	All Add'l per H.P. per Month	1st 50 Hr. per Month per Kw-hr.
		$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	c.
Toronto	B	18 50	15 00	15 00	15 00	.....	.....	1 35	1 00	1.5
Hamilton	B	17 00	16 00	15 00	15 00	.....	Special Schedule			
Ottawa	A	15 00	15 00	15 00	15 00	.....	"		"	
London	B	28 00	24 00	23 00	23 00	.....	First Standard Schedule			
Brantford	B	.....	.....	19 50	19 50	.....	.....	.....	.....	.....
Windsor	B	.....	.....	38 00	38 00	.....	.....	.....	.....	.....
Peterboro	C & D	.....	.....	18 00	18 00	.....	.....	.....	.....	.....
Berlin	B	25 00	22 50	21 50	21 50	.....	First Standard Schedule			
Bridgeport, ext.	.....	Served by Berlin				.....	.....	.....	.....	.....
Port Arthur	A	20 30	19 50	22 25	.....	Spec. Sched.		1 30	1 00	2.25
St. Thomas	B	32 00	29 00	28 00	28 00	.....	First Standard Schedule			
Stratford	B	32 00	30 00	30 00	30 00	.....	"		"	
Sebringville, ext.	.....	Served by Stratford				.....	.....	.....	.....	.....
Guelph	B	25 00	22 00	21 00	21 00	.....	.....	.....	.....	Special
St. Catharines	B	.....	.....	14 00	14 00	.....	.....	.....	.....	.....
Galt	C	25 00	22 00	21 50	21 50	.....	First Standard Schedule			
Woodstock	B	26 00	23 00	23 00	23 00	.....	"		"	
Barrie	D	.....	33 70	33 70	33 70	.....	.....	.....	.....	.....
Welland	B	.....	14 50	14 00	14 00	.....	.....	.....	.....	.....
Port Robinson, ext.	.....	Served by Welland				.....	.....	.....	.....	.....
Collingwood	D	.....	33 79	33 79	33 79	.....	.....	.....	.....	.....
Midland	D	21 00	20 30	19 45	.....	40 20	32 64	1 35	1 00	2.25
Ingersoll	B	28 00	25 50	25 50	25 50	.....	First Standard Schedule			
Preston	C	25 00	21 50	21 00	21 00	.....	"	"	"	
Dundas	B	17 00	16 00	15 00	15 00	.....	"	"	"	
West Hamilton, ext.	.....	Served by Dundas				.....	.....	.....	.....	.....
Ancaster, ext.	.....	"	"	.....	.....	.....	.....	.....	.....	.....
Bullock's Corners and Greensville, ext.	.....	"	"	.....	.....	.....	.....	.....	.....	.....
Goderich	B	.....	.....	37 00	37 00	.....	.....	.....	.....	.....
Waterloo	B	26 00	23 50	22 50	22 50	.....	First Standard Schedule			
Walkerville	B	.....	.....	38 00	38 00	.....	.....	.....	.....	.....
Paris	B	.....	.....	21 00	21 00	.....	.....	.....	.....	.....
Penetang	D	28 80	26 50	26 50	26 50	40 20	32 64	1 35	1 00	2.25
St. Mary's	B	38 00	29 50	29 50	29 50	.....	First Standard Schedule			
Brampton	B	29 00	25 00	25 00	25 00	.....	.....	1 35	1 00	3.3
Tillsonburg	B	32 00	32 00	32 00	32 00	.....	.....	1 35	1 00	3
Hespeler	C	26 00	23 00	23 00	23 00	First Standard Schedule				
Prescott	D	.....	.....	39 59	.....	.....	.....	.....	.....	.....
Weston	B	30 00	30 00	30 00	30 00	.....	.....	1 35	1 00	3.3
Scarlett Road, ext.	.....	Served by Weston				.....	.....	.....	.....	.....
Elmira	D	.....	38 00	38 00	38 00	.....	.....	.....	.....	.....
Clinton	B	.....	.....	41 00	41 00	.....	.....	.....	.....	.....
Milton	B	.....	28 00	28 00	28 00	.....	.....	.....	.....	.....
Georgetown	D	.....	36 00	36 00	36 00	.....	.....	.....	.....	.....
Glen Williams, ext.	.....	Served by Georgetown				.....	.....	.....	.....	.....
Seaforth	B	41 00	40 00	40 00	40 00	.....	.....	1 35	1 00	4.4
Mimico	D	30 74	30 00	30 00	30 00	.....	.....	1 35	1 00	3.6
Humber Bay, ext.	.....	Served by Mimico				.....	.....	.....	.....	.....
Mitchell	B	38 00	37 00	37 00	37 00	.....	First Standard Schedule			
New Hamburg	D	32 00	32 00	32 00	32 00	.....	"	"	"	

MENT "G"

Municipalities

1912 Rates			1913					1914				
2nd 50 Hr. per Month per Kw-hr.	All Additional per Kw-hr.	Prompt Payment Discount	Service Charge per H.P. per Month	1st 50 Hr. per Month per Kw-hr.	2nd 50 Hr. per Month per Kw-hr.	All Additional per Kw-hr.	Prompt Payment Discount	Service Charge per H.P. per Month	1st 50 Hr. per Month per Kw-hr.	2nd 50 Hr. per Month per Kw-hr.	All Additional per Kw-hr.	Prompt Payment Discount
c.	c.	%	$ c.	c.	c.	c.	%	$ c.	c.	c.	c.	%
1.0	0.5	10to20	Same as 1912					Same as 1912				
.....	.....	.....	1 00	2.1	1.4	0.2	25&10	1 00	2.1	1.4	0.2	25&10
.....	.....	.....	Special Schedule					1 00	1.8	1.2	0.15	20
10% local dis.		10	Same as	1912	.....	.....	.....	1 00	2.5	1.7	0.2	10
.....	.....	.....	.....	.....	.....	.....	.....	1 00	1.9	1.3	0.15	10
.....	.....	.....	.....	.....	.....	.....	.....	1 00	3.6	2.4	0.3	10
.....	.....	.....	.....	.....	.....	.....	.....	1 00	1.3	0.8	0.1	10&10
10% local dis.		10	1 00	2.5	1.7	0.2	10	1 00	2.1	1.4	0.2	10
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1.75	1	10	Same as 1912					1 00	2.	1.3	0.15	10
no local disc.		10	1 00	3.3	2.0	0.3	10	1 00	2.5	1.7	0.2	10
" "		10	1 00	3.6	2.4	0.3	10	1 00	3.6	2.4	0.3	10
.....	.....	.....	1 00	5.4	3.6	0.4	10	1 00	5.4	3.6	0.4	10
Schedule		.....	1 00	2.3	1.6	0.2	25	1 00	2.	1.5	0.2	25
.....	.....	.....	.....	.....	.....	.....	.....	1 00	1.8	1.2	0.15	25
10% local dis.		10	1 00	2.3	1.6	0.2	25	1 00	1.9	1.3	0.15	25
" "		10	1 00	2.5	1.7	0.2	10	1 00	2.	1.5	0.2	10
.....	.....	.....	1 00	3.6	2.4	0.3	10	1 00	3.6	2.4	0.3	10
.....	.....	.....	1 00	1.8	1.2	0.15	25	1 00	1.8	1.2	0.15	25
.....	.....	.....	1 00	1.8	1.2	0.15	10	1 00	1.8	1.2	0.15	10
.....	.....	.....	1 00	3.6	2.4	0.3	10	1 00	3.6	2.4	0.3	10
1.5	0.75	10	1 00	1.7	1.1	0.15	10	1 00	1.7	1.1	0.15	10
no local disc.		10	1 00	3.3	2.0	0.3	10	1 00	3.3	2.0	0.3	10
10% "		10	1 00	2.3	1.6	0.2	10	1 00	2.3	1.6	0.2	20
33⅓% "		10	1 00	1.6	1.1	0.15	15	1 00	1.6	1.1	0.15	15
.....	.....	.....	1 00	2.8	1.8	0.2	10	1 00	2.8	1.8	0.2	10
.....	.....	.....	.....	.....	.....	.....	.....	1 00	3.	2	0.25	10
.....	.....	.....	1 00	2.8	1.8	0.25	10	1 00	2.8	1.8	0.25	10
.....	.....	.....	.....	.....	.....	.....	.....	1 00	4.8	3.2	0.4	10
10% local dis.		10	1 00	2.5	1.7	0.2	10	1 00	2.5	1.7	0.2	25
.....	.....	.....	.....	.....	.....	.....	.....	1 00	3.6	2.4	0.3	10
.....	.....	.....	.....	.....	.....	.....	.....	1 00	2.5	1.7	0.2	10
1.5	0.75	10	1 00	1.7	1.1	0.15	10	1 00	1.7	1.1	0.15	10
no local disc.		10	1 00	3.6	2.4	0.3	10	1 00	3.6	2.4	0.3	10
2.2	0.3	10	1 00	3	2	0.25	10	1 00	2.8	1.8	0.2	10
2	1	10	1 00	3.8	2.5	0.3	10	1 00	3.8	2.5	0.3	10
no local disc.		10	1 00	3	2	0.25	10	1 00	3.	2	0.25	10
.....	.....	.....	.....	.....	.....	.....	.....	1 00	2.8	1.8	0.2	10
2.2	0.3	10	1 00	3.3	2.2	0.3	10	1 00	3.	2	0.2	10
.....	.....	.....	.....	.....	.....	.....	.....	1 00	3.3	2.2	0.3	10
.....	.....	.....	1 00	4.7	3.1	0.4	10	1 00	4.7	3.1	0.4	10
.....	.....	.....	.....	.....	.....	.....	.....	1 00	4.9	3.3	0.4	10
.....	.....	.....	1 00	3.1	2.1	0.3	10	1 00	3.	2	0.25	10
.....	.....	.....	1 00	4.3	2.9	0.4	10	1 00	4.	2.7	0.3	10
.....	.....	.....	.....	.....	.....	.....	.....	1 00	4.3	2.9	0.4	10
2.5	1.25	10	1 00	4.9	3.3	0.4	10	1 00	4.3	2.9	0.4	10
2.4	0.3	10	1 00	3.6	2.4	0.3	10	1 00	3.3	2.2	0.3	10
.....	.....	.....	.....	.....	.....	.....	.....	1 00	3.6	2.4	0.3	10
no local disc.		10	1 00	4.7	3.1	0.4	10	1 00	4.2	2.8	0.3	10
" "		10	1 00	4.2	2.8	0.3	10	1 00	3.8	2.5	0.3	10

STATEMENT

Power Rates in

Municipality	Note	Cost of Power to Municipality per H.P. per year				1912				
						Flat Rates		Differential		
		1912	1913	1914	1915	1st 10 H.P. per H.P. per Year	All Add'l per H.P. per Year	1st 10 H.P. per H.P. per Month	All Add'l per H.P. per Month	1st 50 Hr. per Month per Kw-hr.
		$ c.	$ c.	$ c.	$ c.			$ c.	c.	c.
Acton	D	.....	36 00	36 00	36 00	.....	.....	.....	.....	.....
Fergus	D	.....	.....	33 97	33 97	.....	.....	.....	.....	.....
Norwich	D	30 00	32 00	32 00	32 00	.....	.....	1 35	1 00	3.5
Elora	D	.....	.....	33 97	33 97	.....	.....	.....	.....	.....
Port Dalhousie	D	.....	22 30	21 42	.....	.....	.....	.....	.....	.....
Caledonia	D	29 10	29 10	24 00	24 00	.....	.....	1 35	1 00	3.7
Winchester	D	.....	.....	38 28	.....	.....	.....	.....	.....	.....
Stayner	D	.....	.....	47 52	.....	.....	.....	.....	.....	.....
Beaverton	D	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Toronto	D	.....	.....	28 00	28 00	.....	.....	.....	.....	.....
Hagersville	D	.....	33 21	33 21	33 21	.....	.....	.....	.....	.....
Port Credit	D	36 79	31 00	28 00	28 00	.....	.....	1 35	1 00	3.7
Cannington	D	.....	.....	.....	.....	.....	.....	.....	.....	.....
Port Stanley	D	59 75	55 50	43 85	.....	.....	.....	1 35	1 00	5.5
Chesterville	D	.....	.....	36 12	.....	.....	.....	.....	.....	.....
Waterdown	D	37 50	26 00	26 00	26 00	.....	.....	1 35	1 00	3.5
Elmvale	D	.....	31 00	31 00	31 00	.....	.....	.....	.....	.....
Baden	D	36 95	37 00	32 00	32 00	.....	.....	1 35	1 00	4.5
St. Agatha and Petersburg ext.	.....	Served by Baden			.....	.....	.....	.....	.....	.....
Streetsville	D	.....	.....	26 00	26 00	.....	.....	.....	.....	.....
Sunderland	D	.....	.....	.....	.....	.....	.....	.....	.....	.....
Creemore	D	.....	.....	54 13	54 13	.....	.....	.....	.....	.....
Beachville	D	33 89	31 00	31 00	31 00	.....	.....	1 35	1 00	3.9
Woodville	D	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rockwood	D	.....	38 00	38 00	38 00	.....	.....	.....	.....	.....
Coldwater	D	.....	28 00	28 00	28 00	.....	.....	.....	.....	.....
Thamesford	D	.....	.....	45 00	45 00	.....	.....	.....	.....	.....
Thorndale	D	.....	.....	45 00	45 00	.....	.....	.....	.....	.....

Note A—Power delivered at 26,400 or 22,000 volts.
Note B—Power delivered at 13,200 or 12,000 volts.
Note C—Power delivered at 6,600 volts.
Note D—Power delivered at 2,300 or 4,000 volts.

"G"—Continued

Municipalities

1912 Rates			1913					1914				
2nd 50 Hr. per Month per Kw-hr.	All Additional per Kw-hr.	Prompt Payment Discount	Service Charge per H.P. per Month	1st 50 Hr. per Month per Kw-hr.	2nd 50 Hr. per Month per Kw-hr.	All Additional per Kw-hr.	Prompt Payment Discount	Service Charge per H.P. per Month	1st 50 Hr. per Month per Kw-hr.	2nd 50 Hr. per Month per Kw-hr.	All Additional per Kw-hr.	Prompt Payment Discount
c.	c.	%	$ c.	c.	c.	c.	%	$ c.	c.	c.	c.	%
.....	.....	.....	1 00	4.3	2.9	0.4	10	1 00	4.3	2.9	0.4	10
.....	.....	.....	.....	.....	.....	.....	.....	1 00	3.9	2.6	0.3	10
2.3	0.3	10	1 00	3.5	2.3	0.3	10	1 00	3.	2	0.25	10
.....	.....	.....	.....	.....	.....	.....	.....	1 00	3.9	2.6	0.3	10
.....	.....	.....	1 00	2.1	1.4	0.2	10	1 00	2.1	1.4	0.2	10
2.5	0.3	10	1 00	3.7	2.5	0.3	10	1 00	3.7	2.5	0.3	10
.....	.....	.....	.....	.....	.....	.....	.....	1 00	3.1	2.0	0.25	10
.....	.....	.....	1 00	4.7	3.1	0.4	10	1 00	4.2	2.8	0.3	10
.....	.....	.....	.....	.....	.....	.....	.....	1 00	3.6	2.4	0.3	10
.....	.....	.....	.....	.....	.....	.....	.....	1 00	3.	2.	0.25	10
.....	.....	.....	1 00	3.9	2.6	0.3	10	1 00	3.9	2.6	0.3	10
2.4	0.3	10	1 00	3.7	2.4	0.3	10	1 00	3.	2	0.25	10
.....	.....	.....	.....	.....	.....	.....	.....	1 00	3.6	2.4	0.3	10
3.7	0.5	10	1 00	5.5	3.7	0.5	10	1 00	5.	3.	0.4	10
.....	.....	.....	.....	.....	.....	.....	.....	1 00	4.2	2.8	0.3	10
2.4	0.3	10	1 00	3.5	2.4	0.3	10	1 00	3.	2.	0.25	10
.....	.....	.....	1 00	3.6	2.4	0.3	10	1 00	3.6	2.4	0.3	10
3.0	0.4	10	1 00	4.5	3.0	0.4	10	1 00	3.8	2.5	0.3	10
.....	.....	.....	1 00	5.1	3.4	0.4	10	1 00	5.1	3.4	0.4	10
.....	.....	.....	.....	.....	.....	.....	.....	1 00	3.4	2.2	0.3	10
.....	.....	.....	.....	.....	.....	.....	.....	1 00	4.5	3.0	0.4	10
.....	.....	.....	.....	.....	.....	.....	.....	1 00	6.4	4.3	0.5	10
2.6	0.3	10	1 00	3.9	2.6	0.3	10	1 00	3.	2	0.25	10
.....	.....	.....	.....	.....	.....	.....	.....	1 00	4.5	3.0	0.4	10
.....	.....	.....	1 00	4.7	3.1	0.4	10	1 00	4.7	3.1	0.4	10
.....	.....	.....	1 00	3.2	2.1	0.3	10	1 00	3.2	2.1	0.3	10
.....	.....	.....	.....	.....	.....	.....	.....	1 00	5.6	3.8	0.5	10
.....	.....	.....	.....	.....	.....	.....	.....	1 00	5.6	3.8	0.5	10

Suggested Rates for 1915

Toronto, 1st 10 H.P.	1.35	.....	.....	.....	.....
" All additional	1.00	1.5	1.	0.15	20
Hamilton	1.00	1.9	1.3	0.15	25 & 10
London	1.00	2.5	1.7	0.2	10 & 10
St. Thomas	1.00	2.5	1.7	0.2	10 & 10
Guelph	1.00	2.	1.5	0.2	25 & 10
Woodstock	1.00	2.	1.5	0.2	10 & 10
Preston	1.00	2.3	1.6	0.2	20 & 10
Waterloo	1.00	2.5	1.7	0.2	25 & 10
Georgetown	1.00	3.5	2.3	0.3	10
New Hamburg	1.00	3.8	2.5	0.3	10 & 10
Rockwood	1.00	4.7	3.1	0.4	10 & 10

All other Municipalities same Rates as in 1914

STATE

Lighting Rates

Municipality	1912 Domestic		1912 Commercial			1913 Domestic		1913 Commercial		
	Per 100 Sq. Ft.	Per Kw-hr.	1st 30 Hr. per month per Kw-hr.	All Additional per Kw-hr.	Prompt Payment Discount	Per 100 Sq. Ft.	Per Kw-hr.	1st 30 Hr. per Month per Kw-hr.	All Additional per Kw-hr.	Prompt Payment Discount
	c.	c.	c.	c.	%	c.	c.	c.	c.	%
Toronto	4	3	8	3	10–20	4	3	8	3	10–20
Hamilton	4	3	8	3	10	4	3	(6-1st 25 hr.) (3-next 75 hs.)	0.2	20
Ottawa	Special Schedule					Special Schedule				
London	....	5	5	5	10	.....	5	5	5	10
Brantford	....	....	.....	.....	.....	.....	.....	.....	.....	.....
Windsor	....	....	.....	.....	.....	.....	.....	.....	.....	.....
Peterboro'	....	....	.....	.....	.....	.....	.....	.....	.....	.....
Berlin	5	4	12	5	10	4	4	8	4	10
Bridgeport, ext.	Berlin rate 10%					Berlin rate 10%				
Port Arthur	4	3.5	8	3.5	10	4	3.5	8	3.5	10
St. Thomas	3	5	12	5	10	4	4	8	4	10
Stratford	4	4.5	12	4.5	10	4	4.5	9	4.5	10
Sebringville, ext.	....	....	.....	.....	.....	4	5	10	5	10
Guelph	....	8	8	8	net	4	4	8	4	20
St. Catharines	....	....	.....	.....	.....	.....	.....	.....	.....	.....
Galt	4	4	12	4	25	4	4	8	4	25
Woodstock	3	4	10	4	20	4	4	8	4	25
Barrie	....	....	.....	.....	.....	4	4.5	9	4.5	10
Welland	....	....	.....	.....	.....	4	3	6	3	25
Port Robinson, ext.	....	....	.....	.....	.....	4	3	6	3	10
Collingwood	....	....	.....	.....	.....	4	4.5	9	4.5	10
Midland	4	4	12	4	10	4	4	8	4	20
Ingersoll	....	10	10	10	10	4	4.5	9	4.5	10
Preston	4	4.5	12	4.5	10	4	4	8	4	10
Blair & Doon, ext.	....	....	.....	.....	.....	.....	.....	.....	.....	.....
Dundas	4	3.5	10	3.5	10	4	3	(6-1st 25 hr.) (3-next 75 hr.)	0.15	10
West Hamilton, ext.	....	....	.....	.....	.....	4	4	8	4	10
Ancaster, ext.	....	....	.....	.....	.....	.....	.....	.....	.....	.....
Bullocks Corners and Greensville, ext.	....	....	.....	.....	.....	4	4	8	4	10
Goderich	....	....	.....	.....	.....	.....	.....	.....	.....	.....
Waterloo	4	4	12	4	10	4	4	8	4	20
Walkerville	....	....	.....	.....	.....	.....	.....	.....	.....	.....
Paris	....	....	.....	.....	.....	.....	.....	.....	.....	.....
Penetang	4	5	12	5	10	4	4	8	4	10
St. Mary's	4	6	12	7	10	4	5	10	5	10
Brampton	....	6	6	6	20	4	3	6	3	10
Tillsonburg	4	5	12	5	10	4	5	10	5	10
Hespeler	....	10	10	10	10	4	4.5	9	4.5	10
Prescott	....	....	.....	.....	.....	.....	.....	.....	.....	.....

MENT "H"

in Municipalities

1914					Suggested 1915						
Domestic		Commercial			Domestic			Commercial			
Per 100 Sq. Ft.	Per Kw-hr.	1st 30 Hr. per Kw-hr.	All Additional per Kw-hr.	Prompt Payment Discount	Per 100 Sq. Ft.	Note A per Kw-hr.	Note B per Kw-hr.	1st 30 Hr. per Kw-hr.	Next 70 hr per Kw-hr.	All Additional per Kw-hr.	Prompt Payment Discount
c.	c.	c.	c.	%	c.	c.	c.	c.	c.	c.	%
4	3	8	3	10–20	3	2.8	1.4	6	2.8	0.6	10
4	3	(6-1st 25 hr.) (3-next 75 hr.)	0.2	20	3	2.5	1.25	5	2.5	0.2	10
4	2.5	6	2.5	20	3	2.2	1.1	5	2.2	0.5	10
4	3	6	3	25	3	2	1	5	2	0.5	10
4	3	(6-1st 30 hr.) (3-next 70 hr.)	0.15	10	3	3	1.5	6	3	0.15	10
3	4	(8-1st 30 hr.) (4-next 70 hr.)	0.8	10	3	4	2	8	4	0.8	10
3	2.5	6	2.5	10	3	2.5	1.25	5	2.5	0.5	10
4	4	8	4	25	3	2.5	1.25	5	2.5	0.5	10
Berlin rate – 10%											
4	2.5	6	2.5	10	3	2	1	5	2	.5	10
4	2.5	6	2.5	20	3	2	1	5	2	.5	10
4	4	8	4	20	3	3	1.5	6	3	.6	10
4	5	10	5	10	3	5	2.5	10	5	1	10
4	4	8	4	25	3	2.25	1.125	5	2.25	0.5	10
4	3	(6-1st 30 hr.) (3-next 70 hr.)	0.6	25	3	2.25	1.125	5	2.25	0.5	10
3	2.5	6	2.5	10	3	2.5	1.25	5	2.5	0.5	10
4	3	6	3	20	3	2.5	1.25	5	2.5	0.5	10
4	4.5	9	4.5	10	3	4.5	2.25	9	4.5	0.9	10
4	3	6	3	25	3	2.25	1.125	5	2.25	0.15	10
4	3	6	3	10	3	3	1.5	6	3	0.6	10
4	4.5	9	4.5	10	3	4	2	8	4	2	10
4	3	6	3	10	3	2.5	1.25	5	2.5	0.5	10
4	4	8	4	10	3	3.5	1.75	7	3.5	0.7	10
4	4	8	4	20	3	3	1.5	6	3	0.6	10
4	5.5	8	5.5	10							
4	3	(6-1st 25 hr.) (3-next 75 hr.)	0.15	10	3	2.5	1.25	5	2.5	0.15	10
4	4	8	4	10	3	4	2	8	4	0.8	10
4	5	10	5	10	3	5	2.5	10	5	1	10
4	4	8	4	10	3	4	2	8	4	0.8	10
4	4.5	9	4.5	10	3	4.5	2.25	9	4.5	0.9	10
4	4	8	4	25	3	3	1.5	6	3	0.6	10
3	4	(8-1st 30 hr.) (4-next 70 hr.)	0.8	10	3	4	2	8	4	0.8	10
4	3.5	7	3.5	10	3	3.5	1.75	7	3.5	0.7	10
4	3	6	3	10	3	3	1.5	6	3	0.6	10
4	5	10	5	10	3	4.5	2.25	9	4.5	0.9	10
4	3	6	3	20	3	2.5	1.25	5	2.5	0.5	10
4	4	8	4	10	3	3.5	1.75	7	3.5	0.7	10
4	4.5	9	4.5	10	3	4	2	8	4	0.8	10
4	4	8	4	10	3	4	2	8	4	0.8	10

NOTE A—For all consumption up to 4 kw-hr. per month per 100 sq. ft. of floor area for the first 1000 sq. ft. and 3 kw-hr. for each additional 100 sq. ft. of floor area charged.
NOTE B—For all additional consumption.

STATEMENT

Lighting Rates

Municipality	1912					1913				
	Domestic		Commercial		Prompt Payment Discount	Domestic		Commercial		Prompt Payment Discount
	Per 100 Sq. Ft.	Per Kw-hr.	1st 30 Hr. per Month per Kw-hr.	All Additional per Kw-hr.		Per 100 Sq. Ft.	Per Kw-hr.	1st 30 Hr. per Month per Kw-hr.	All Additional per Kw-hr.	
	c.	c.	c.	c.	%	c.	c.	c.	c.	%
Weston	.....	8	8	8	10	4	4	8	4	10
Scarlet Road, ext	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Elmira	.....	.....	.....	.....	.....	4	5	10	5	10
Clinton	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Milton	.....	.....	.....	.....	.....	4	4	8	4	10
Georgetown	.....	.....	.....	.....	.....	4	5	10	5	10
Glen Williams, ext	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Seaforth	.....	10	10	10	5 to 20	4	5	10	5	10
Mimico	4	4.5	12	4.5	10	4	4	9	4.5	10
Humber Bay ext	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mitchell	Special rates 70c. per month minimum					.....	.....	.....	.....	.....
New Hamburg	.....	10	10	10	10	4	5	10	5	10
Acton	.....	.....	.....	.....	.....	4	5	10	5	10
Fergus	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Norwich	4	4	12	4	10	4	4	8	4	10
Elora	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Port Dalhousie	.....	.....	.....	.....	.....	4 also flat rates	3	6	3	10
Caledonia	4	4	10	4	10	4	4	8	4	10
Winchester	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stayner	.....	.....	.....	.....	.....	4	5	10	5	10
Beaverton	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Toronto	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hagersville	.....	.....	.....	.....	.....	4	4.5	9	4.5	10
Port Credit	4	4.5	12	4.5	10	4	4.5	9	4.5	10
Cannington	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Port Stanley	4	5	12	5	10	4	5	10	5	10
Chesterville	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Waterdown	4	5	12	5	10	4	5	10	5	10
Elmvale	.....	.....	.....	.....	.....	4	4.5	9	4.5	10
Baden	4	5	12	5	10	4	5	10	5	10
St. Agatha and Petersburg ext	.....	.....	.....	.....	.....	4	6	12	6	10
Sunderland	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Creemore	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Beachville	4	5	12	5	10	4	5	10	5	10
Woodville	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rockwood	.....	.....	.....	.....	.....	4	4.5	11	4.5	10
Coldwater	.....	.....	.....	.....	.....	4	4	8	4	10
Thamesford	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Thorndale	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

"H"—Continued

in Municipalities

1914					Suggested 1915						
Domestic		Commercial			Domestic			Commercial			
Per 100 Sq. Ft.	Per Kw-hr.	1st 30 Hr. per Kw-hr.	All Additional per Kw-hr.	Prompt Payment Discount	Per 100 Sq. Ft.	Note A per Kw-hr.	Note B per Kw-hr.	1st 30 Hr. per Kw-hr.	Next 70 Hr. per Kw-hr.	All Additional per Kw-hr.	Prompt Payment Discount
c.	c.	c.	c.	%	c.	c.	c.	%	c.	c.	%
4	3	6	3	10	3	3	1.5	6	3	0.6	10
4	4	8	4	10							
4	5	10	5	10	3	45	2.25	9	4.5	0.9	10
4	5	10	5	10	3	5	2.5	10	5	1	10
4	4	8	4	10	3	3.5	1.75	7	3.5	0.7	10
4	5	10	5	10	3	4	2	8	4	0.8	10
4	6	12	6	10							
4	4	8	4	10	3	4	2	8	4	0.8	10
4	4	8	4	10	3	3.5	1.75	7	3.5	0.7	10
4	5	10	5	10							
4	4	8	4	10	3	4	2	8	4	0.8	10
4	4	8	4	10	3	3.5	1.75	7	3.5	0.7	10
4	5	10	5	10	3	5	2.5	10	5	1	10
4	4.5	9	4.5	10	3	4.5	2.25	9	4.5	0.9	10
4	4	8	4	15	3	3.5	1.75	7	3.5	0.7	10
4	4.5	9	4.5	10	3	4.5	2.25	9	4.5	0.9	10
4	3	6	3	10	3	3	1.5	6	3	0.6	10
also flat rates					also flat rates						
4	4	8	4	10	3	4	2	8	4	0.8	10
4	4	8	4	10	3	4	2	8	4	0.8	10
4	4.5	9	4.5	10	3	4.5	2.25	9	4.5	0.9	10
3	4	8	4	10	3	4	2	8	4	0.8	10
4	4	8	4	10	3	4	2	8	4	0.8	10
4	4.5	9	4.5	10	3	4.5	2.25	9	4.5	0.9	10
4	4	8	4	10	3	3.5	1.75	7	3.5	0.7	10
3	4	8	4	10	3	4	2	8	4	0.8	10
4	4.5	9	4.5	10	3	4.5	2.25	9	4.5	0.9	10
4	5	10	5	10	3	5	2.5	10	5	1	10
4	5	10	5	10	3	4.5	2.25	9	4.5	0.9	10
4	4.5	9	4.5	10	3	4.5	2.25	9	4.5	0.9	10
4	4.5	9	4.5	10	3	4	2	8	4	0.8	10
4	6	12	6	10	3	6	3	12	6	1.2	10
3	6	12	6	10	3	6	3	12	6	1.2	10
4	7	14	7	10	3	7	3.5	14	7	1.4	10
4	5	10	5	10	3	4.5	2.25	9	4.5	0.9	10
3	6	12	6	10	3	6	3	12	6	1.2	10
4	4.5	11	4.5	10	3	4.5	2.5	9	4.5	0.9	10
4	4	8	4	10	3	4	2	8	4	0.8	10
4	6	12	6	10	3	5	2.5	10	5	1.0	10
4	6	12	6	10	3	6	3	12	6	1.2	10

Note A—For all consumption up to 4 kw-hr. per month per 100 sq. ft. of floor area for the first 1000 sq. ft., and 3 kw-hr. for each additional 100 sq. ft. of floor area charged.
Note B—For all additional consumption.

MUNICIPAL RATES

Beginning with the past fiscal year all of the municipalities under the control of the Commission adopted rates in accordance with the standard schedules that had been developed. A brief description of the form of these schedules applied to the urban municipalities and their suburbs which have been more fully outlined in the previous reports, may be given as follows:

Domestic Lighting

A service charge of 4 cents per month per 100 square feet of floor area, with a minimum charge of 25 cents, and a varying consumption charge, based on the cost of power to the municipality, and a prompt payment discount, which is also varied in different municipalities, according to local conditions.

Commercial Lighting

A charge per kilowatt-hour of twice the domestic lighting consumption charge, for the first 30 hours monthly use of the installed capacity, while all remaining consumption is billed at one-half of that rate, with a prompt payment discount which is varied in different localities, according to local conditions, and a minimum monthly bill of 50 cents. There is no service charge for commercial lighting.

Power

A service charge of $1.00 per month per horse power of connected load, or maximum demand, and three consumption charges, varied according to the cost of power to the municipality, having the approximate ratio of 12 to 8 to 1 for the first 50 hours of monthly use of load, for the second 50 hours monthly use and for all additional consumption, with a prompt payment discount which is also varied according to local conditions, and with class discounts, that are the same in all municipalities.

Street Lighting

A rate per lamp per year based on the actual cost of service, according to the size and style of street lighting unit used.

The "Standard Interpretations of Rates" contained in this section, were prepared and circulated among the municipalities for their guidance.

Referring to the tabulation of the rates in use in the municipalities, it will be noted that there are prompt payment discounts of from 10 per cent to 25 per cent. There is one municipality where 25 per cent plus 10 per cent is given to power consumers. The former discount in this case is, however, used as a local discount, and is never recharged for non-payment of bills.

With the use of this wide range of prompt payment discounts there is a great variation in the net service charges for domestic lighting in different municipalities. In some cases this rate is 3.6 cents per 100 square feet of floor area, while in others, only 3 cents per 100 square feet is collected. To investigate the advisability of enforcing a uniform charge in all municipalities, data was collected from over thirty operating towns, giving details as to the floor area and the consumption of each consumer. After investigating the costs of serving different sized houses in different municipalities, it was decided that the service charge for domestic lighting be changed to:—3 cents per month per 100 square feet of floor area, with a minimum charge on 1,000 square feet in cities and towns, or 1,200 square feet in villages and police villages or 1,500 square feet in suburban districts, and a maximum service charge on 3,000 square feet.

It was also decided that the prompt payment discount on domestic lighting bills be 10 per cent in all municipalities.

Calculations were then made to ascertain the changes that would be required in the consumption charges of the municipalities with the application of the 3 cent service charge, and the 10 per cent prompt payment discount, to produce desired amounts of revenue.

A further analysis was made to ascertain the advisability of fixing a follow-up rate for domestic consumers having large consumptions, due to the use of electric stoves and other appliances of large capacity. It was decided that consumption charges corresponding to those at present in use will apply to all consumption up to 40 kw-hr. per month for the first 1,000 square feet, and 3 kw-hr. for each additional 100 square feet of floor area charged. All additional consumption is to be billed at one-half of this rate.

Although the standard schedule of rates for commercial lighting is in accordance with the description given above, there are a few isolated cases where municipalities have been allowed to use a third charge, applying to all consumption over 100 hours use per month of the installed capacity. These charges have been the same as the third consumption charge of the power rate used in those municipalities. Since with the present standard consumers taking long hour service are required to pay larger bills than would be the case if they were billed at the power rates, it was decided that a third consumption charge be put into force in all municipalities, and that it be made one-tenth of the consumption charge for the first 30 hours monthly use, and apply to all power taken over 100 hours use.

It was also decided that the commercial lighting rates be adjusted so that a uniform discount of 10 per cent would apply in all municipalities.

These decisions in regard to both the Domestic and Commercial lighting rates will be incorporated into the recommendations as to rates for use during 1915.

No radical changes are contemplated in the form of the power rate schedules at present in use. In some of these, however, it will be noted that the prompt payment discount is large, being 25 per cent in a few cases. This amount makes too great a penalty for non-payment of bills, 10 per cent being deemed sufficient. It has, therefore, been decided that whenever a prompt payment discount of over 10 per cent exists, and it is deemed advisable to make a reduction in the power schedule, a local discount shall be given, or the rate schedule changed so as to give the desired reduction with the use of the minimum cash discount.

Municipal Rates

1914

Municipality	Cost of Power to Municipality per H.P. per Year	Lighting Rates					Power Rates					Street Lighting	
		Domestic		Commercial		Prompt Payment Discount	Per H.P. per Month	1st 50 Hr. per Month per Kw-hr.	2nd 50 Hr. per Month per Kw-hr.	All Add'l per Kw-hr.	Prompt Payment Discount		
		Per 100 Sq. Ft.	Per Kw-hr.	1st 30 Hr. per Kw-hr.	All Add'l per Kw-hr.								
	$ c.	c.	c.	c.	c.	%	$ c.	c.	c.	c.	%	$ c.	
Acton	36 00	4	5	10	5	10	1 00	4.3	2.9	0.4	10	15.00	per 100-w. Incan.
Ancaster	Served by Dundas	4	5	10	5	10	1 00	3	2	0.25	10	14.00	" "
Baden	32 00	4	4.5	9	4.5	10	1 00	3.8	2.5	0.3	10	12.00	" "
Barrie	33 70	4	4.5	9	4.5	10	1 00	3.6	2.4	0.3	10	12.00	" "
Beachville	31 00	4	5	10	5	10	1 00	3	2	0.25	10	10.00	" "
Beaverton	Note A	3	4	8	4	10	1 00	3.6	2.4	0.3	10	13.00	" "
Berlin	21 50	4	3.5	7	3.5	25	1 00	2.1	1.4	0.2	10	9.00	" "
Brampton	25 00	4	3	6	3	20	1 00	2.8	1.8	0.2	10	8.00	" "
Brantford	19 50	4	3	6c. 1st 30 hr. 3c. next 70 hr.	0.15	10	1 00	1.9	1.3	0.15	10	8.00 40.00	" Magnetite Arc.
Bullock's Corn. and Greensville	Served by Dundas	4	4	8	4	10	1 00	2.8	1.8	0.25	10	12.00	100-w. Incan.
Caledonia	24 00	4	4	8	4	10	1 00	3.7	2.5	0.3	10	12.00	100-w. "
Cannington	Note A	3	4	8	4	10	1 00	3.6	2.4	0.3	10	13.00	" "
Chesterville	44 43	4	5	10	5	10	1 00	4.2	2.8	0.3	10	13.00	" "
Clinton	41 00	4	5	10	5	10	1 00	4.9	3.3	0.4	10	12.50	40-c.p. "
Coldwater	28 00	4	4	8	4	10	1 00	3.2	2.1	0.3	10	12.00	100-w. "
Collingwood	33 97	4	4.5	9	4.5	10	1 00	3.6	2.4	0.3	10	12.00	" "
Creemore	54 00	4	7	14	7	10	1 00	6.4	4.3	0.5	10	12.50	" "
Dundas	15 00	4	3	6c. 1st 25 hr. 3c. next 75 hr.	0.15	10	1 00	1.6	1.1	0.15	15	9.00	" "
Elmira	38 00	4	5	10	5	10	1 00	4.7	3.1	0.4	10	12.00	" "
Elmvale	31 00	4	4.5	9	4.5	10	1 00	3.6	2.4	0.3	10	12.00	" "
Elora	33 97	4	4.5	9	4.5	10	1 00	3.9	2.6	0.3	10	12.50	" "
Fergus	33 97	4	4.5	9	4.5	10	1 00	3.9	2.6	0.3	10	12.50	" "
Galt	21 50	3	2.5	6	2.5	10	1 00	1.9	1.3	0.15	25	8.50	" "

Georgetown ..	36 00	4	5	10	5	10	1 00	4	2.7	0.3	10	12.50	100-w. Incan.
Glen Williams	Served by Georget'n	4	6	12	6	10	1 00	4.3	2.9	0.4	10	14.00	100-w "
Goderich	37 00	4	4.5	9	4.5	10	1 00	4.8	3.2	0.4	10	15.00 55.00 40.00 25.00	80-c.p. " 3-lt. Standard 1 " 1 "
Guelph	21 00	4	4	8	4	25	1 00	2	1.5	0.2	25	9.00	100-w.Incan.
Hagersville...	33 21	4	4.5	9	4.5	10	1 00	3.9	2.6	0.3	10	12.00	" "
Hamilton.....	15 00	4	3	6c. 1st 25 hr. 3c. next 75 hr.	0.2	20	1 00	2.1	1.4	0.2	25 & 10	8.00 13.75 50.00	" " 250-w. " 500-w. Nitrogen-filled on Stand
Hespeler	23 00	4	4.5	9	4.5	10	1 00	3	2	0.25	10	12.00	100-w. Incan.
Ingersoll	25 50	4	4	8	4	10	1 00	2.8	1.8	0.2	10	12.00 12.50	80-w. " 100-w. "
Lodon.....	23 00	4	3	6c. 1st 30 hr. 3c. next 70 hr.	0.6	25	1 00	2.5	1.7	0.2	10	11.00 12.85	75-w. " 100-w. "
Midland.....	19 45	4	3	6	3	10	1 00	1.7	1.1	0.15	10	13.50 35.00	" " 500-w. Arc.
Milton	28 00	4	4	8	4	10	1 00	3	2	0.25	10	9.00	100-w. Incan.
Mimico.....	30 00	4	4	8	4	10	1 00	3.3	2.2	0.3	10	11.00	" "
Mitchell	37 00	4	4	8	4	10	1 00	4.2	2.8	0.3	10	12.00	" "
New Hamburg	32 00	4	4	8	4	10	1 00	3.8	2.5	0.3	10	9.00	" "
New Toronto..	28 00	4	4	8	4	10	1 00	3	2	0.25	10	12.00	" "
Norwich.....	32 00	4	4	8	4	15	1 00	3	2	0.25	10	12.00 9.00 10.00	" " 60-w. " 100-w. "
Ottawa.....	15 00	4	2.5	6	2.5	20	1 00	1.8	1.2	0.15	20	45.00	Arc
Paris	21 00	4	3.5	7	3.5	10	1 00	2.5	1.7	0.2	10	11.00	100-c.p. "
Penetang	26 50	4	3	6	3	10	1 00	1.7	1.1	0.15	10	12.00	100-w. "
Peterboro'	18 00	3	2.5	6	2.5	10	1 00	1.3	0.8	0.1	10 & 10	12.00 50.00 50.50	16 & 32-c.p.Incan. 500-w. Arc. Magnetite Arc.
Petersburg and St. Agatha..	Served by Baden	4	6	12	6	10	1 00	5.1	3.4	0.4	10		
Port Arthur..	22 25	4	2.5	6	2.5	10	1 00	2	1.3	0.15	10	5.00 8.30	60-w. Incan. 100-w. "
Port Credit...	28 00	4	4	8	4	10	1 00	3	2	0.25	10	11.00	" "
Port Dalhousie	21 50	4	3	6	3	10	1 00	2.1	1.4	0.2	10		
Port Robinson	Served by Welland	4	3	6	3	10	1 00	1.8	1.2	0.15	10		
Port Stanley..	42 70	4	4.5	9	4.5	10	1 00	5	3	0.4	10	16.00	" "
Prescott.....	34 05	4	4	8	4	10	1 00	2.8	1.8	0.2	10		

Municipal Rates—Continued

1914

Municipality	Cost of Power to Municipality per H.P. per year	Lighting Rates					Power Rates					Street Lighting	
		Domestic		Commercial		Prompt Payment Discount	Per H.P. per Month	1st 50 Hr. per Month per Kw-hr.	2nd 50 Hr. per Month per Kw-hr.	All Add'l per Kw-hr.	Prompt Payment Discount		
		Per 100 Sq. Ft.	Per Kw-hr.	1st 30 Hr. per Kw-hr.	All Add'l per Kw-hr.								
	$ c.	c.	c.	c.	c.	%	$ c.	c.	c.	c.	%	$ c.	
Preston.....	21 00	4	4	8	4	20	1 00	2.3	1.6	0.2	20	11.00 12.00	60-w. Incan. 100-w. "
Rockwood	38 00	4	5.5	11	5.5	10	1 00	4.7	3.1	0.4	10	13.00	" "
Seaforth	40 00	4	4	8	4	10	1 00	4.3	2.9	0.4	10	15.00 12.00	" " 75-w. "
Sebringville ..	Served by Stratford	4	5	10	5	10	1 00	5.4	5.6	0.4	10		
St. Catharines	14 00	4	3	6c. 1st 30 hr. 3c. next 70 hr.	0.6	25	1 00	1.8	1.2	0.15	25	8.00	100-w. "
St. Mary's....	29 50	4	5	10	5	10	1 00	3.6	2.4	0.3	10	13.00 25.00 65.00	100-w. " 250-w. Nitrogen Arc
St. Thomas...	28 00	4	2.5	6	2.5	20	1 00	2.5	1.7	0.2	10	10.00 53.00	75-w. Incan. Arc
Stayner	43 57	4	4.5	9	4.5	10	1 00	4.2	2.8	0.3	10	12.00 9.00	100-w. " 60-w. "
Stratford	30 00	4	4	8	4	20	1 00	3.6	2.4	0.3	10		
Sunderland...	Note A	3	6	12	6	10	1 00	4.5	3.0	0.4	10		
Thamesford ..	45 00	4	6	12	6	10	1 00	5.6	3.8	0.5	10	14.00	100-w. "
Thorndale....	45 00	4	6	12	6	10	1 00	5.6	3.8	0.5	10	14.00	" "
Tillsonburg...	32 00	4	4	8	4	10	1 00	3.8	2.5	0.3	10	11.00	" "
Toronto	15 00	4	3	8	3	10 to 20	1.35 1st 10h.p. 1.00 all add'l	1.5	1	0.5	10 to 20	9.00	" "
Walkerville...	38 00	3	4	8c. 1st 30 hr. 4c. next 70 hr.	0.8	10	1 00	3.6	2.4	0.3	10	10.50	60-w. "
Waterdown...	26 00	4	5	10	5	10	1 00	3.5	2.4	0.3	10	10.00	100-w. "

Waterloo.....	22 50	4	4	8	4	25	1 00	2.5	1.7	0.2	25	8.75 10.00 10.50 25.00 40.00	100-w. mul. or 75 w. series Incan. 100-w. ser. Incan. 150-w. mult. " 3-lt. Standard 1-100-w. & 2-60-w. 5-lt. Standard 1-100-w. & 4-60-w, Incan.
Welland.....	14 00	4	3	6	3	25	1 00	1.8	1.2	0.15	25	18.00 9.00	250-w. Incan. 100-w. "
West Hamilton	Served by Dundas	4	4	8	4	10	1 00	2.8	1.8	0.2	10	14.00	" "
Weston.....	30 00	4	3	6	3	10	1 00	3	2	0.2	10	12.00 40.00	" " 5-lt. St., 4-100-w. Incan.
Winchester ..	43 77	4	4	8	4	10	1 00	3.1	2.0	0.25	10	15.00	100-w. Incan.
Windsor.....	38 00	3	4	8c. 1st 30 hr. 4c. next 70 hr.	0.8	10	1 00	3.6	2.4	0.3	10		
Woodbridge...	33 83	4	4.5	9	4.5	10	1 00	3.9	2.6	0.3	10		
Woodstock	23 00	4	3	6	3	20	1 00	2	1.5	0.2	10	25.00 10.00	250-w. " 60 or 100-w. "
Woodville	Note A	3	6	12	6	10	1 00	4.5	3.0	0.3	10		

Note A—Service commenced during October, 1914.

Standard Interpretations of Rates as Used by Municipalities for Electric Service

GENERAL

(1) No electric service shall be given until a proper contract has been drawn up and signed by the prospective consumer, and by the corporation.

(2) A copy of these interpretations shall accompany and be a part of every contract between consumers and corporations served by the Hydro-Electric Power Commission of Ontario.

(3) Contracts are for one year and are self-renewing from year to year, expiring only when notice is given by either party, one month prior to the expiration of a yearly term, or for non-payment of bills. All contracts terminate, as far as rates are concerned, upon the order of the Hydro-Electric Power Commission of Ontario.

DOMESTIC LIGHTING

(1) The rates for domestic lighting shall consist of a service charge of 4 cents per 100 square feet of floor area, and a consumption charge, being a rate in cents per kilowatt-hour.

The floor area of a house is obtained by taking its outside dimensions, omitting bay windows and similar projections. The area derived from such dimensions, multiplied by the number of floors and reduced by ten per cent (10%) gives the net area under the charge. Under this charge are included all parts of the house used for living and sleeping purposes, making verandahs, basements, unfinished attics and outbuildings exempt, except where any portion of these is so used, in which case only that portion shall be charged.

(2) The practice of omitting the service charge and giving an optional consumption charge for domestic power service is not permitted; likewise the use of flat rate contracts for house lighting service.

(3) The minimum service charge shall be 25 cents per month net.

(4) Power for domestic service shall not be sold at the power rates.

(5) Whenever free lighting service is granted to any municipal employee or official, the electric department shall bill the municipal department granting such service for the service given at the rates in use in the municipality.

(6) Where small motors, heating or cooking appliances or other electrical devices are used for domestic purposes, there shall be no additional service charge. The power so used shall be billed at the consumption charge only of the domestic lighting rate.

(7) Free porch lights will not be permitted except in municipalities where the Commission's consent is annually obtained.

(8) The practice of giving lamp renewals free of charge is not permitted, except in municipalities where the Commission's permission is annually obtained. Lamps shall be furnished by the corporation to consumers only, at cost, wherever the corporation elects to supply lamps or other electrical devices.

(9) Whenever small stores with dwellings are supplied through the same service, the consumer may be billed on either the domestic or the commercial lighting rate according to the mutual agreement of the consumer and the corporation.

COMMERCIAL LIGHTING

(1) The installed capacity of a commercial load is the total of the rated capacities of the lamps in use. In estimating the installed capacity of a commercial

consumer, the capacity of single-phase motors and heating appliances shall not be included in the total installed capacity used in billing, except where it is necessary to increase the capacity of the service to serve such appliances. Wherever this latter condition obtains, the installed capacity shall be taken as the normal capacity of the service so installed.

(2) If at any time the consumer changes the installed capacity, he shall notify the corporation of his intention so that contracts and bases of billing may be amended on the day on which such changes are made.

(3) The representative of the corporation shall have the privilege of visiting the consumer's premises during all reasonable hours to check up the installed capacity, and if, on making such an inspection, any increase is found, the contract shall be amended, and the consumer shall be billed for that month and for succeeding months in accordance with the amended contract.

(4) Commercial consumers having not more than 100 watts connected may be given a flat rate of 50 cents per month net.

(5) The minimum net bill for commercial service shall be 50 cents per month.

(6) There shall be no optional rate for all consumption to commercial users, nor will an optional flate rate for this class of service be permitted beyond that given in paragraph 4 above.

(7) No user shall be given a power contract to cover commercial lighting service.

(8) Churches shall be billed at half the commercial lighting rate, which rate shall include all charges for power whether used for lighting purposes or otherwise.

(9) Paragraph 8 under domestic lighting shall also apply to commercial users.

POWER

(1) Users of power shall be given contracts which shall be placed in various classes dependent on the time during which power is to be used. Corresponding to each class of contract is a discount to which monthly bills for power used under it shall be subjected. The contract classes and their corresponding class discounts are as follows:

Class A—24 hour unrestricted use.....No discount.
Class B—24 hour restricted use.....10% discount
Class C—10 hour unrestricted use.....10 % discount.
Class D—10 hour restricted use.....33⅓% discount.

A consumer taking power under Class "A" may use power 24 hours each day every day in the year.

In taking power under Class "B," the power may be used as under Class "A," except that no power shall be taken during the restricted hours listed in paragraph 2.

A Class "C" user may use power 10 hours a day every day in the year, *i.e.*, between 7 a.m. and 6 p.m.

When power is taken under Class "D" it may be used as in Class "C," except that no power shall be taken during the restricted hours listed in paragraph 2.

(2) Restricted Hours: Subject to revision according to load conditions.

Oct. 15th—Oct. 31st	5.30 p.m.	to 6.30 p.m.
Nov. 1st—Nov. 30th	5.00 p.m.	to 6.30 p.m.
Dec. 1st—Jan. 15th	4.30 p.m.	to 6.30 p.m.
Jan. 16th—Feb. 15th	5.00 p.m.	to 6.30 p.m.
Feb. 16th—Mar. 1st	5.30 p.m.	to 6.30 p.m.

(3) Should a consumer take power in a higher class than that under which he is rated, he shall from that time be considered as automatically transferred to the higher class for the balance of the term of contract. If he is taking power under a Class "D" contract, and does not shut down during the restricted hours, he shall be billed as a Class "C" or Class "A" user for the remainder of the term of his contract. Or should he work overtime observing the restricted hours he shall then become a Class "B" user.

A Class "C" user may upon giving notice to the corporation to that effect, take power as under a Class "A" contract during months in which he may desire to work overtime. Upon discontinuing such 24 hour operation he shall again return to his original class. A Class "C" user cannot change to Class "B" temporarily.

(4) Contracts may be made for "Summer Power" which shall be for a period of not less than eight months and shall be for Class "A" or Class "C" power only.

(5) All motors supplied over the same service shall be included under the same contract, whether in the same or separate buildings.

(6) Power required for factory lighting may be included on the power contract where such exists provided such service can be given over the same service connections, and measured on the same meters as are required to take care of the power load. In fixing the service charge the capacity of the lighting transformers installed by the consumer shall be added to the total of the capacities of the motors and other equipment, except when the maximum demand is measured. Wherever factory lighting service is given over service connections and through meters not measuring energy for power purposes, commercial lighting rates shall be used.

(7) Whenever a consumer installs power equipment in addition to that already covered by his contract, he shall notify the corporation of such addition and his contract shall be amended to cover the whole equipment installed.

(8) The representative of the corporation shall have the privilege of visiting the consumer's premises during all reasonable hours to check up the power installation, and if on making such an inspection any increase is found, his contract shall be amended and the consumer shall be billed for that month and for succeeding months in accordance with the amended contract.

(9) If power is to be sold on maximum demand, the consumer must furnish a satisfactory maximum demand meter, or the municipality may furnish it, billing the consumer monthly for the use of this meter at the rate of 15 per cent per annum of the cost of the meter, plus the cost of the installation and chart paper.

(10) The local superintendent shall have these meters checked at proper intervals, and collect the charts each month when reading the watt hour meter, so that the determination of the maximum demand will be in the hands of the superintendent or other properly delegated authority. Should the maximum demand meter used be a dial type designed to indicate the maximum demand, its reading shall be taken each month at the same time as the watt hour meter is read.

(11) Wherever the load conditions are such that a definite established maximum demand may be determined it will not be necessary to instal a maximum demand meter.

(12) A consumer shall be billed on the maximum demand previously established until this demand shall have have become increased, after which the increased demand shall be used as the basis of billing.

(13) Where the installed capacity is 100 h.p. or less, the sustained peak of one minute duration shall be used as a basis of billing. For installations having over 100 h.p. connected, one additional minute shall be allowed for every additional 100 h.p. or part thereof up to and including 500 h.p. When the installed capacity exceeds 500 h.p. a 5 minute sustained peak shall be used.

(14) When no maximum demand meter is installed the service charge shall be based on the total horse-power connected, except as is provided in paragraph 11.

(15) A flat rate for power service is not permitted except in cases where the permission of the Commission is annually obtained.

(16) Where power is taken at 2,200 volts and extra discount of 5 per cent is to be given; where power is taken at 13,000 volts this extra discount shall be 10 per cent.

(17) Whenever a consumer installs a synchronous motor or other condenser equipment, and the municipality is given the use of such equipment for power factor correction purposes, an extra discount may be given from the monthly bills, subject to the approval of the Commission being annually obtained.

(18) Whenever the total installation of one consumer is 5 h.p. or less, single-phase current shall be supplied except where service can be given without the installation of secondary street mains. That is, should there be a three-phase feeder at motor voltage passing the premises, three-phase power may be given, but wherever it is necessary to install a feeder or transformers to serve one consumer, single phase power shall be supplied.

(19) The rate for welders, air compressor motors, elevators and similar loads shall be a service charge based on the rated capacity plus the standard consumption charges. Where graphic recording maximum demand meters are used to indicate the maximum demand of users having intermittent load of this class, the service charge shall be based on the maximum demand without the fluctuations created by these intermittent loads plus, the demand of the welders, compressor, or similar load as shown by the chart.

PROMPT AND PAYMENT DISCOUNTS

A municipality granting a discount for prompt payment of the accounts rendered the consumers will strictly enforce the condition upon which it is to be granted. It is never to be granted when payment is made after the last discount day.

When the consumer is 60 days in arrears the service shall be discontinued without notice, and service shall not be given again until payment is made in full, including a charge of $1 for the cost of reconnecting.

MUNICIPAL PURCHASES

The municipal electrical enterprises in Ontario require in the aggregate, large quantities of poles, line wire, cross arms, insulators, transformers, house service meters and of everything needed for the construction and maintenance of their various electrical projects.

This demand can in a measure be filled by individual municipal purchase, but this is not always satisfactory. Owing to the wide range in the variety of materials and in the requirements, the municipal officials may lack the training necessary to properly safeguard their interests, and may not know exactly what should be used and where it can be obtained to the best advantage. The requirements of an individual town are comparatively limited. It cannot always afford large quantities and accordingly has to pay higher prices. At times rush orders may be placed for urgently needed material, which through lack of provision, may not be in stock. For these and other reasons individual effort of this kind often means through lack of co-operation the more or less indiscriminate purchase of smaller quantities at higher prices, and the absence of an effective means of control which would tend to standardize quality and efficiency.

If the large requirements of the municipalities as a whole were combined and centralized, there would be created a purchasing agency which could control the various commercial conditions so that each municipality could obtain its comparatively smaller requirements under the favorable conditions attending competitive wholesale purchase.

To give practical effect to this centralized purchasing idea, the Commission maintains a Purchasing Department whose services are offered to any municipality or provincial institution in Ontario.

A list is given below of the municipalities who have already availed themselves of the facilities offered by this Department together with a summary of the more important items purchased. This list is necessarily condensed and by no means indicates the wide range of this Department.

The co-operation of these municipalities acting together in this way through the Commission has already shown important results. Their total requirements have enabled the Commission to obtain for them the various materials and apparatus desired at prices materially lower than those they had previously been paying individually. A few of the main items with the savings effected is as follows:

	Saving Over Previous Individual Prices.
Service Transformers	25 to 50%
House Service Watthour Meters	10 to 25%
Tungsten Lamps and Carbon Lamps	25 to 50%
Rubber Covered Wire	10 to 25%

These are only a few of the economies effected, but they will serve to show what can be done by co-operation. With the support of a larger number of municipalities the Commission should be able to do even better, and we desire to call this feature to the attention especially of the newer municipalities which may not perhaps be aware of the advantages of purchasing in this manner.

In Toronto, the Commission has a large storehouse in which is stocked large quantities of line construction material, lamps and other items in general demand. Bulletin No. 1,007 describes the conditions under which lamps are supplied t

municipalities and full information on line hardware material is given in Bulletin No. 1,005. Any other items not carried in our stores can generally be obtained at wholesale prices, and attention is called to Bulletin No. 1,003 which describes a line of watt-hour meters of the highest grade at very attractive prices. Service transformers can also be obtained at low prices, and full information will gladly be given upon request.

The complete facilities of the Commission's Laboratory enable it at all times to test and check all of the various materials, devices and apparatus, and to see that these are continually supplied in accordance with the high standard set by the Commission.

During the past year the Commission has been successful in extending the use of household utilities such as irons, toasters, electric ranges, vacuum cleaners, washing machines, etc. It maintains an Advertising Department which is prepared to supply for the towns suitable literature, and in every way to give assistance calculated to promote the sale of these devices. It has made arrangements whereby all the standard devices of this kind may be obtained at very attractive prices. We wish to call particular attention to this feature of the Commission's service, especially as the use of these utilities not only becomes a valuable source of revenue to the town, but on the new Hydro rates their cost of operation is low enough to place them in the class of necessities and greatly extend their further use if properly pushed by the towns.

A summary of the more important purchases made for the municipalities during 1914 is approximately as follows:

Municipal Purchases

Town	Poles		Overhead Street Lighting	Transformers		Lamps		Meters		Switch Gear	General Supplies	Motors	Miscellaneous	Total
	No.	Value		Kw.	Value	No.	Value	No.	Value					
		$ c.	$ c.		$ c.		$ c.		$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Acton	.....	.....	55 96	.....	.....	570	251 36	13	97 50	.....	.....	.....	.....	404 82
Ayr	59	135 25	2,333 42	70½	645 15	250	64 00	109	860 56	.....	.....	.....	.....	4,038 38
Baden	29	92 50	488 01	95	1,031 10	350	89 00	114	898 36	.....	.....	.....	.....	2,598 97
Barrie	.....	.....	270 00	25	200 28	1,660	598 17	50	375 00	.....	77 81	.....	.....	1,521 26
Beaverton	96	428 50	1,254 69	5	58 50	24	12 60	112	846 30	.....	.....	.....	.....	2,600 59
Beachville	.....	.....	14 80	.....	.....	72	39 60	.....	.....	.....	4 83	.....	.....	59 23
Beeton	.....	.....	.....	.....	.....	100	25 00	.....	.....	.....	.....	.....	.....	25 00
Berlin	200	1,250 00	170 60	205	1,452 36	12,125	4,047 00	75	562 50	45 98	260 98	.....	.....	7,789 42
Blandford Twp	.....	.....	80 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	80 00
Bobcaygeon	.....	.....	14 50	.....	.....	144	110 52	.....	.....	.....	.....	.....	.....	125 02
Bolton	.....	.....	991 25	58	858 25	.....	.....	70	525 00	.....	.....	.....	.....	2,374 50
Brampton	.....	.....	762 65	15	164 75	2,961	859 91	36	310 64	.....	32 05	.....	.....	2,130 00
Brantford	75	330 00	499 78	81½	976 10	3,378	1,022 31	37	398 64	.....	45 73	.....	.....	3,272 56
Breslau	.....	.....	169 55	132½	1,135 51	7	42 00	3	87 38	.....	.....	.....	.....	1,434 44
Brockville	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15 00	.....	.....	15 00
Caledonia	.....	.....	45 90	.....	.....	48	25 20	.....	.....	.....	.....	.....	.....	71 10
Campbellford	.....	.....	.....	.....	.....	.....	.....	6	48 42	.....	.....	.....	.....	48 42
Cannington	.....	.....	1,072 04	43	494 95	562	141 68	113	999 50	.....	.....	.....	.....	2,708 17
Chatham	1,225	7,264 00	105 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7,369 00
Chesterville	.....	.....	703 77	5	52 40	1,524	424 00	63	624 50	.....	401 95	.....	.....	2,206 62
Clinton	.....	.....	899 64	162	1,982 00	298	148 80	265	3,390 00	.....	510 00	170 35	1,978 25	9,079 04
Coldwater	.....	.....	109 40	.....	.....	200	54 00	34	120 14	.....	.....	.....	.....	283 54
Collingwood	.....	.....	386 62	.....	.....	906	773 40	.....	.....	.....	167 13	.....	.....	1,327 15
Creemore	28	135 80	2,967 88	80	679 37	172	88 80	1	54 00	.....	54 96	.....	.....	3,980 81
Dixie	.....	.....	3,302 95	52	595 00	.....	.....	.....	.....	.....	.....	.....	.....	3,897 95
Dorchester	112	431 50	2,437 43	30½	323 00	.....	.....	2	60 00	.....	.....	.....	.....	3,251 93
Dresden	175	407 75	.....	101½	1,384 00	.....	.....	.....	.....	.....	.....	.....	.....	1,791 75
Drumbo	90	132 10	1,535 25	30	343 40	.....	.....	52	428 56	.....	.....	.....	.....	2,439 31
Dundas	266	856 20	4,407 52	142	1,633 80	1,490	1,335 40	125	666 04	922 00	432 65	.....	.....	10,253 61
Elmira	.....	.....	130 71	7½	90 00	1,968	927 60	79	816 77	.....	19 80	.....	.....	1,984 88
Elmvale	.....	.....	463 09	68	526 42	448	138 20	2	72 00	.....	43 32	.....	.....	1,243 03
Elora	198	792 40	3,711 40	86	804 40	100	52 00	93	761 20	.....	37 80	.....	.....	6,159 70
Embro	126	410 25	2,095 10	35	319 60	.....	.....	100	853 00	.....	.....	.....	.....	3,677 95
Fergus	240	477 75	4,451 62	132	1,208 25	.....	.....	149	1,195 92	.....	.....	.....	.....	7,333 54

Galt				60	433 50	6,200	1,799 10	1	156 88		252 20				2,641 68
Georgetown	263	1,756 50	2,946 42	289	1,994 00	628	206 12	53	521 85		120 35				7,545 24
Goderich			1,365 88	98½	1,099 73	1,314	513 10	30	588 10		251 04	282 00			4,099 85
Grantham Twp	450	2,249 10	71 00												2,320 10
Guelph			4,213 80	265	1,745 85	5,328	1,880 70	175	1,312 50		21 68				9,174 53
Hagersville			1,426 60	60	798 50	562	231 90	116	993 16		502 75				3,952 91
Hamilton	100	976 50	225 00	1,770	12,656 00	16,575	11,971 57	1,675	12,766 75						38,595 82
Hespeler			225 00	15	165 00	945	456 75	1	51 00						897 75
Ingersoll			250 00	39½	385 55	1,650	343 80	207	1,635 00		59 50	126 50			2,552 85
Kincardine						1,036	344 30	16	120 00						464 30
Kingston			411 70	105	829 00	354	2,180 00								3,420 70
Listowel			102 49			14	53 20	12	96 43		17 39				269 51
London	100	190 00	11,183 15	286	1,979 60	22,866	10,348 80	406	4,982 72		1,374 22				30,058 49
Lucan	116	250 50	1,917 25	40	442 00			55	425 35						3,035 10
Markham			50 00			798	218 90	6	45 00						313 90
Marmora			203 35			112	32 40								235 75
Merritton			75 00	55	429 25										504 25
Midland			319 00			1,801	1,185 14				1,060 44				2,564 58
Milton	78	120 00	2,180 00	75	497 20	994	426 20	15	178 93		143 00		20 88		3,566 21
Mimico	129	328 90	2,471 00	96½	719 35	121	63 50	112	951 66		112 57				4,646 98
Mitchell			146 17			923	233 48				31 42				411 07
Morrisburg			71 00	10	94 00	498	249 00								414 00
New Hamburg			40 41			1,344	410 80	2	200 60		112 67	94 00			858 48
New Toronto			1,781 08	43	462 95			40	316 00		2 00				2,562 03
North Bay						12	3 95								3 95
Norwich	468	2,150 00	735 05	44	974 30	1,365	362 50					910 22	193 50		5,325 57
Oakville											179 00				179 00
Orillia						312	170 40								170 40
Ottawa						5,680	1,984 74				529 33				2,514 07
Owen Sound			13 25	35	319 40	603	196 23	40	300 00						828 88
Oxford	8	40 00	126 09	2	32 30				7 50		54 18	189 00			449 07
Paris			18 35	48	57 60	58	585 58	2	60 86		371 00	442 00			1,535 39
Penetang			355 08	20	191 00	750	498 00	57	746 90		469 36				2,260 34
Peterboro'	60	182 50	1,412 25					701	2,873 10						4,467 85
Plattsville	85	192 00	1,721 20	77½	425 88	48	25 20	1	38 00						2,405 78
Prescott			1,255 61			364	172 00				22 62				1,450 23
Preston			1,349 94			2,374	823 14	25	190 07		15 56				2,378 71
Princeton	136	346 25	818 10	10½	157 00										1,321 35
Port Arthur			1,620 64			3,895	1,263 00	1,617	12,871 72		392 50				16,097 86
Port Credit	40	198 25	584 22	50½	451 75	148	78 90	37	441 00						1,754 12
Port Dalhousie	245	975 80	4,336 31	51	1,937 60	48	25 80	55	417 85						7,693 36
Port Stanley			94 50	10	85 00	1,042	324 30	1	28 50						532 30
Renfrew			33 45	5	20 00						60 00				113 45
Rockwood			90 25			300	77 00	16	135 40		86 32				388 97
Seaforth			598 50	10	140 00	1,922	842 14	48	488 04		254 68				2,323 36

Municipal Purchases—Continued

Town	Poles		Overhead Street Lighting	Transformers		Lamps		Meters		Switch Gear	General Supplies	Motors	Miscellaneous	Total
	No.	Value.		Kw.	Value	No.	Value	No.	Value					
		$ c.	$ c.		$ c.		$ c.		$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Simcoe	696	2,300 30	1,829 00	.....	.....	.....	.....	100	750 00	.....	.....	.....	.....	4,879 30
Stayner	.....	.....	33 75	.....	.....	1,045	370 00	1	75 00	.....	.....	.....	.....	478 75
St. Catharines	555	1,874 35	8,502 60	707½	6,887 40	1,884	756 20	.....	.....	.....	237 80	.....	.....	18,258 35
St. Mary's	.....	.....	624 09	.....	.....	1,866	754 21	26	347 40	280 00	360 90	.....	.....	2,366 60
Stouffville	.....	.....	200 05	.....	.....	724	218 70	24	174 00	.....	7 50	.....	.....	600 25
Stratford	3	48 00	9,472 03	105	569 50	3,688	444 25	175	812 50	330 00	37 95	.....	.....	11,714 23
Strathroy	709	2,480 00	3,438 57	232½	2,087 95	.....	.....	409	1,914 12	.....	4 84	.....	.....	9,925 48
Streetsville	.....	.....	50 66	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	50 66
St. Thomas	80	319 50	648 35	65	587 74	2,832	797 70	75	562 50	.....	198 43	.....	.....	3,114 22
Sunderland	.....	.....	450 91	.....	.....	24	12 60	93	542 54	.....	.....	.....	.....	1,006 05
Tay Twp.	.....	.....	2,219 84	.....	.....	.....	.....	50	250 00	.....	.....	.....	.....	2,469 84
Thamesford	.....	.....	594 25	3	40 80	124	40 25	22	186 80	.....	12 00	.....	.....	874 10
Thorndale	.....	.....	347 00	4	64 60	398	140 40	13	130 84	.....	18 49	.....	.....	701 33
Tilbury	.....	.....	373 30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	373 30
Tillsonburg	.....	.....	716 54	69	856 00	2,042	818 66	38	319 44	.....	26 60	.....	.....	2,737 24
Toronto	.....	.....	.....	.....	.....	76,198	24,800 61	.....	.....	.....	.....	.....	.....	24,800 61
Toronto Twp.	541	1,603 10	6,702 54	119½	1,160 80	450	117 15	147	1,294 83	.....	6 82	.....	.....	10,885 14
Victoria Harbour	.....	.....	2,827 00	.....	.....	.....	.....	12	61 00	.....	.....	.....	.....	89 27
Wallaceburg	390	757 30	1,290 00	170½	1,307 00	.....	.....	200	1,500 00	.....	.....	.....	.....	4,854 30
Waterdown	352	1,431 45	3,247 69	106	1,374 95	398	120 70	10	186 50	.....	74 00	.....	.....	6,435 29
Waterford	.....	.....	208 62	.....	.....	.....	.....	150	1,125 00	.....	.....	.....	.....	1,333 62
Waterloo	70	110 00	1,409 10	17	256 50	4,477	1,597 88	61	525 40	.....	121 10	.....	.....	4,019 98
Waubaushene	80	200 00	1,726 81	25	119 54	.....	.....	50	232 00	.....	.....	.....	.....	2,278 35
Welland	100	264 70	5,041 27	.....	.....	3,556	867 84	8	80 57	75 00	84 50	.....	.....	6,413 88
Weston	101	347 50	3,119 32	54	514 90	1,456	609 50	1	33 00	.....	211 57	.....	.....	4,385 79
Winchester	44	136 50	926 26	.....	.....	1,100	320 30	50	375 00	.....	.....	.....	.....	1,758 06
Windsor	1,575	8,247 00	92,142 09	560	3,286 50	10,398	7,117 99	1,950	17,304 75	.....	410 00	.....	.....	128,508 33
Woodbridge	114	350 25	1,640 39	52	839 50	72	37 80	.....	.....	.....	.....	.....	.....	2,867 94
Woodstock	74	181 80	393 36	472	2,787 70	4,798	1,958 68	5	101 07	.....	74 34	.....	.....	5,496 95
Woodville	.....	.....	788 44	.....	.....	298	129 10	71	415 00	.....	.....	.....	.....	1,332 54
Walkerville	335	2,057 50	11,810 42	1,174	13,027 25	500	125 00	110	862 20	.....	79 15	.....	.....	27,961 52
York Twp.	424	1,197 75	3,312 97	59	681 15	.....	.....	59	530 67	.....	.....	.....	.....	5,722 54
Yarmouth	.....	.....	.....	4	90 00	.....	.....	1	52 00	.....	.....	.....	.....	142 00
	11,440	47,007 75	245,810 59	9,698	83,024 77	230,669	94,008 21	10,977	89,686 71	1,652.98	10,565 78	2,214 07	2,192 63	576,163 49

MUNICIPAL ELECTRICAL INSPECTION

During the last fiscal year the work of the Electrical Inspection Department had been chiefly the completion of the Rules and Regulations and a certain amount of educational work in bringing the requirements of the Act before municipalities and distributing copies of the Rules and Regulations. At that time only one municipality had appointed an inspector, namely, the City of Ottawa. The present year has witnessed very significant progress made in the work of the Department and at the present not less than seventy municipalities have duly authorized electrical inspectors, viz.:

Municipality	Inspector
Ancaster	V. K. Stalford
Aurora	R. R. Matson
Aylmer	J. Millard
Barrie	K. S. Macdonnell
Bartonville	V. K. Stalford
Beamsville	V. K. Stalford
Beaverton	W. A. Morrison
Belleville	H. A. Thompson
Berlin	H. C. Fischer
Bobcaygeon	Sidney Cluxton
Brampton	Geo. Ostrander
Brantford	W. H. Mowat
Burford	W. H. Mowat
Burlington	V. K. Stalford
Caledonia	Bailey Jones
Cannington	W. A. Morrison
Chatham	W. H. Somers
Clinton	H. B. Chant.
Cobourg	Arthur Ovens
Collingwood	E. J. Stapleton
Dundas	V. K. Stalford
Essex	E. C. Weldrick
Fergus	Joseph Wilson
Ford City	E. C. Weldrick
Fort William	A. D. Smith
Georgetown	Geo. Ostrander
Goderich	W. H. Bullard
Grimsby	V. K. Stalford
Guelph	James Gass
Hagersville	James Laidlaw
Hamilton	V. K. Stalford, Chief Geo. Crawford, Asst. Geo. H. Fitzgerald, Asst.
Kingston	T. A. Hanley
London	W. B. Legate, Chief W. E. Ryder, Assistant
Markham	W. A. Morrison
Merritton	A. T. Smith
New Hamburg	Geo. Morley
Newmarket	R. R. Matson
Niagara Falls	C. E. Dilse
Norwich	K. W. Daykin
Oshawa	W. G. Mitchell
Ottawa	Norman E. Bell, Chief A. Croydan, Assistant
Owen Sound	J. R. McLinden
Paris	W. H. Mowat
Parry Sound	G. Groves
Petrolia	W. H. Somers
Port Arthur	Stirling Jaffray
Sandwich	E. C. Weldrick
Sarnia	Alf. Wheeler
Seaforth	Ed. Mole
Sebringville	Geo. F. Heideman
Stoney Creek	V. K. Stalford
Stouffville	W. A. Morrison
Stratford	Geo. F. Heideman
St. Thomas	Geo. Howse
Strathroy	E. R. Smitherim
Sunderland	W. A. Morrison
Thurlow Tp.	H. A. Thompson
Tillsonburg	J. E. Teckoe
Toronto	Jas. Shields, Chief (Staff of Assistants to be appointed)
Trenton	H. A. Thompson
Uxbridge	W. A. Morrison
Walkerville	E. C. Weldrick
Waterdown	V. K. Stalford
Welland	C. E. Dilse
West Hamilton	V. K. Stalford
Whitby	A. C. Cameron
Windsor	E. C. Weldrick
Winona	V. K. Stalford
Woodstock	H. Webster
Woodville	W. A. Morrison

The following municipalities are at present dealing with the Department, and in all of these appointments will be made and inspection enforced probably before the end of the year, viz.: Peterboro, Lakefield, Lindsay, Campbellford, Port Hope, Omemee, Millbrook, St. Catharines, Port Dalhousie, Thorold, Bridgeburg, Fort Erie, Font Hill, Richdill, Fenwick, Port Robinson, Port Colborne, Crowland Township, Acton, Tavistock, St. Mary's, Galt, Preston, Hespeler, Waterloo, Elmira, Ayr, Cobalt, Haileybury, New Liskeard, Orillia, Midland, Penetang, Coldwater, Stayner, Wallaceburg, Dresden, Flesherton, Walkerton, Hanover, Palmerston, Sault Ste. Marie, Havelock, Merrickville, Comber, Simcoe, Chesterville, Winchester, Prescott, Morrisburg, and a number of small villages and townships adjacent to the above.

It will be noted that in some instances there are two, and even three inspectors necessary to take care of the volume of work requiring attention, and in the case of the City of Toronto there will be at least fifteen inspectors under the chief inspector.

It is also of importance to note that these Inspection Departments extend well across the Province, and with the exception of some important centres where appointments are pending, there will be few places where an inspector cannot be reached from an adjoining municipality. In all cases due care has been exercised in requiring the appointment of only competent inspectors and as a result a very good class of men has been secured.

During the past year the Department has carried on a steady correspondence with not only the inspectors from the various districts, but with electrical contractors, engineers, manufacturers and supply houses all over the Province, who, realizing the necessity of adapting themselves to the regulations, require a great many decisions and interpretations of the rules. All of this correspondence has received prompt attention.

The Inspection Departments throughout the Province have in most cases proved self-supporting, and some cases have even shown a surplus. The fees charged are considerably below the average of those throughout the United States and some parts of Canada.

The Department has made a large number of special inspections, in different towns where electricity is being introduced, by an inspector directly from the Department. In these cases only the actual cost to the Commission has been charged, and the inspector has been able to visit many municipalities and inspect the chief installations therein, reporting to the town authorities, and insuring action being taken to remedy defective work. So satisfactory has this branch of the work proved that it will be continued even to a greater extent during the coming year.

During the year, 1,363 inspections have been made direct from this Department, these being quite distinct from inspections carried on by municipal inspectors and made in small municipalities where no permanent inspector has been provided. They have been a great assistance to the municipalities, as only the actual cost of the work has been charged, and the inspector has in most cases covered the entire municipality in one day's time, so that the cost per inspection has been very low.

Some fatalities have occurred in the Province during the past year from electrical causes, each of which would have been prevented had the electrical work complied with the requirements of the Rules and Regulations.

The inspectors of the Commission have in many cases visited outside inspection departments and assisted in the organizing of such departments, and, altogether, a very large amount of work has been satisfactorily executed.

Many favorable comments on the Rules and Regulations have been received from all sources, and it is very gratifying to note that after these Regulations have been put to the test during the past year, there have been practically no criticisms whatever.

In ordinary house wiring a very significant improvement has been made in the introduction of sealed service boxes, which is an entirely new departure in this Province.

In conclusion, we are glad to report that the work of the Department has been extended very much and it is expected by the end of the next year that the Province will be well under inspection if we can secure the co-operation of the municipalities. This by making it practically impossible for any uninspected electrical installation to be carried out, will tend greatly to reduce the fire and accident hazard.

FAIRS AND EXHIBITIONS

Canadian National Exhibition

Arrangements were made with a number of manufacturers for the erection of a Model Barn and Dairy, equipped throughout with stable fittings and appliances, such as would be used for the ordinary sized farm for demonstration purposes at the Canadian National Exhibition, 1914. A 5-horse power motor was installed in the stable on the ceiling, belted to a line shaft on the ceiling one foot out from the piers, arranged to run at about 300 revolutions per minute. From this line shaft, belts were run up through the floor to the following machinery which was installed in the mow. An individual grain separator, having a capacity of 60 to 100 bushels per hour, silo-filling box of the individual carrier type and a silo-filling box of the individual blower type: in the stable was installed, a root pulper and a milking machine, one of the type having a pump as a part of the pail equipment, no pulsator, the pump working from zero to full vacuum value and back again eliminating the necessity for one.

The dairy was equipped completely with all of the devices necessary for the production of good butter and for keeping the plant in a sanitary condition. This equipment consisted of a cream separator, churn and butter-worker, belted to a line shaft which was suspended from the ceiling and which was driven by a one-half horse power motor supported on brackets near the ceiling. In addition to this, there was the Commission's electric water heater of 20 gallons capacity, a metal sink, bottle washers, print makers, aerator and Babcock butter tester.

Each of the manufacturers having apparatus on display had a demonstrator with it. All of the machines were kept operating during the time that the exhibit was open each day. Information was given out regarding the possibility of applications of power to farm machinery, as well as general information regarding how to procure a supply for the district in which the inquirer lived.

Both of the buildings were lighted throughout by a system installed completely in conduit, controlled by switches. Close to the silo was located a "Syndicate" electric outfit for silo-filling and threshing, consisting of a 20 horse-power motor installed in one wagon, the necessary transformers, meters and connections installed in another wagon, and one of the largest ensilage cutting boxes.

Fair Demonstrations

During the year demonstrations of electrical household appliances and small power farm machines operated by electric power were made at Prescott Fair, Winchester Fair, Beaverton Fair, Kingston Fair, Guelph Winter Fair, Ontario Corn Growers' Exhibition at Chatham, Dundas Hydro-Electrical Industrial Exposition, and Arkona.

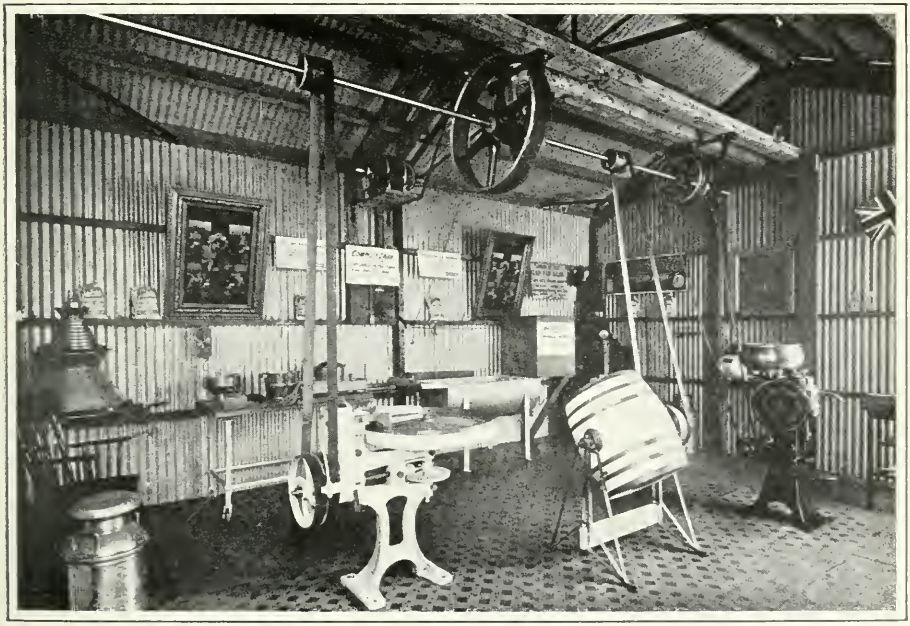
Practical demonstrations were made of milking, grinding grain, separating cream, heating water, besides the making of toast, tea, coffee and cooking a full meal.

An expert demonstrator was in charge of the utensils, in addition to the engineer who was in charge of the demonstration.

Municipal Demonstration

Among the number of Municipalities that made demonstrations at their local fairs of the different cooking utensils, the applications of electricity for power for the farm and for the manufacturer, besides the improved types of lamps, shades, fixtures, fitting, etc., for lighting, were Woodstock and Goderich.

Motor and Shafting in Model Barn—Canadian National Exhibition



Model Dairy Driven by "Hydro-Electric" Power—Canadian National Exhibition

RURAL DEMONSTRATIONS

Silo-Filling

Report of the uses that were made of Outfits No. 4 and 5, while demonstrating in Oxford and Middlesex counties during the year are given below.

These outfits, which consisted of a 20 h.p. motor mounted on one wagon and transformers, cable reel, meters, etc., on another wagon, were built with the understanding that some of the men at whose places they were being used would purchase them. Places at which they were used are referred to as Farms No. 1 to 6 under the outfit No. 4, and Farms No. 1 to 7 under outfit No. 5.

OUTFIT No. 4

At T. H. Dent's, Blandford Township, just outside of Woodstock: Sept. 25th-29th, 1914.

At Wm. Jull & Sons, Norwich Township, North Line: Oct. 2nd, 3rd, and 5th, 1914.

At E. E. Hanmer's: Oct. 6th and 7th and Nov. 11th, 1914.

At A. E. Cornwell's, North Norwich Township, East Line: Oct. 8th and 9th, 1914.

At Walter Lossing's, North Norwich Township, East Line: Oct. 10th, 12th and 13th, 1914.

At J. P. Stephens', North Norwich Township, East Line: Oct. 14th and 15th, 1914.

OUTFIT No. 5

At Charles Hunt's, Lot 13, Con. 3, Dorchester Township, Gore: Sept. 28th, 1914.

At James Mitchell's, Lot 11, Con. 2, Dorchester Township, Gore: Sept. 28th, 29th, and 30th, 1914.

At S. H. Wood's, Lot 10, Con. 1, Dorchester Township: Sept. 30th and Oct. 1st, 1914.

At Baskerville Brothers', Lot 5, Con. 4, East Nissouri Township: Oct. 2nd, 3rd, and 5th, 1914.

At Bolton Fitzgerald's, Lot 7, Con. 3, East Nissouri Township: Oct. 5th and 6th, 1914.

At R. Stinson's, Lot 7, Con. 4, East Nissouri Township: Oct. 6th, 7th, and 8th, 1914.

At J. McKay's, Lot 19, Con. 1, N. Oxford Township: Oct. 9th-13th, 1914.

At Wallace Brothers', Thamesford: October 29th-30th, 1914.

At George Hogg's, Thamesford: Nov. 9th, 1914.

Outfit No. 4

Farm No. 1

Silos	No. 1. 20 ft. by 20 ft. by 25 ft. No. 2. 14 ft. by 40 ft. (round).
Heights to elevate	27 ft. and 40 ft.
Capacity	No. 1. 10,000 cu. ft.—200 tons. No. 2. 6,056 cu. ft.—150 tons.
Amount put in	No. 1. Full. No. 2. 30 ft.—4,617 cu. ft.—100 tons.
Time	Set—4 days. Running—30 hours.
Kilowatt-hours	Used 504. Per ton put in—1.68.
Horse-power	A 20 h.p. motor used. Demand 12 h.p. to 27 h.p.
Tons per hour	11.66.
Cost	Total at 4 ct. per kw-hr., $20.16. Per ton put in—5.76 ct.
Distance to field	140 rods.
Labor	Most of the time—4 teams and drivers and 5 men.
Condition of corn	Fairly green.
Length of cut	¾ inch.
Details of box	"Bell No. 60" with automatic feed table.
Speed	864 r.p.m. on No. 1 Silo and 1,000 r.p.m. on No. 2 Silo.

NOTE.—As this was the first place this outfit was used, it took some time to get the box and belt broken in.

Farm No. 2

Silos	No. 1. 12 ft. by 35 ft. No. 2. 12 ft. by 35 ft.
Height to elevate	37 ft.
Capacity	No. 1. 3,959 cu. ft.—100 tons. No. 2. 3,959 cu. ft.—100 tons.
Amount put in	Both full.
Time	Set—2.25 days. Running, 14.75 hours.
Kilowatt-hours	Used 364. Per ton put in—1.82.
Horse-power	A 20 h.p. motor used. Demand not noted.
Tons per hour	13.57.
Cost	Total at 4 ct. per kw-hr., $14.56. Per ton put in—7.28 ct.
Distance to field	40 rods.
Labor	5 teams and drivers and 6 men.
Condition of corn	Dry.
Length of cut	½ inch.
Details of box	"Bell No. 60" with automatic feed table.
Speed	1,000 r.p.m.

Farm No. 3

Silo	14 ft. by 40 ft.
Height to elevate	40 ft.
Capacity	6,056 cu. ft.—150 tons.
Amount put in	Full and chute filled.
Time	Set—1.5 days. Running, 13.25 hours.
Kilowatt-hours	Used 310. Per ton put in—2.07.
Horse-power	A 20 h.p. motor used. Demand 12 h.p. to 27 h.p.
Tons per hour	11.3.
Cost	Total at 4 ct. per kw-hr., $12.40. Per ton put in—8.21 ct.
Distance to field	25 rods.
Labor	4 teamsters and drivers and 4 men.
Condition of corn	Medium.
Length of cut	½ inch.
Details of box	"Bell No. 60" with automatic feed table.
Speed	1,000 r.p.m.

Farm No. 4

Silo	14 ft. by 42.5 ft.
Height to elevate	42 ft.
Capacity	6,541 cu. ft.—163 tons.
Amount put in	Full and chute filled.
Time	Set—2 days. Running—15 hours.
Kilowatt-hours	Used 329. Per ton put in—2.02.
Horse-power	A 20 h.p. motor was used. Demand 12 h.p. to 27 h.p.
Tons per hour	10.85.
Cost	Total at 4 ct. per kw-hr., $13.16. Per ton put in—8.07 ct.
Distance to field	10 rods to No. 1 field. 25 rods to No. 2 field.
Labor	4 teams and drivers and 5 men.
Condition of corn	Quite green.
Length of cut	½ inch for first 33 ft.. then ⅜ inch to finish and to fill the chute.
Details of box	"Bell No. 60" with automatic feed table.
Speed	1,000 r.p.m.

Farm No. 5

Silo	14 ft. by 42.5 ft.
Height to elevate	42 ft.
Capacity	6,541 cu. ft.—163 tons.
Amount put in	Full.
Time	Set—2.5 days.
	Running—11.2 hours.
Kilowatt-hours	Used 354.
	Per ton put in—2.16 ct.
Horse power	A 20 h.p. motor used.
	Demand 12 h.p. to 40 h.p.
Tons per hour	14.5.
Cost	Total at 4 ct. per kw-hr., $14.16.
	Per ton put in—8.7 ct.
Distance to Field	20 rods.
Labor	4 teams and drivers and 4 men.
Conditions of corn	Dry most of the time.
Length of cut	½ inch.
Details of box	"Bell No. 60" with automatic feed table.
Speed	1,000 r.p.m.

NOTES: (a) ½-inch cut with wet corn was the reason for the demand going as high as 40 h.p. and it would take more. Short cut should not be used when corn is wet.

(b) An accident happened while running ½-inch cut on wet corn, a hole being punched through the bottom of the steel case. No stone, nail, nor piece of hard metal was found.

Farm No. 6

Silo	16 ft. by 40 ft.
Height to elevate	40 ft.
Capacity	8,044 cu. ft.—180 tons.
Amount put in	30 ft.—6,033 cu. ft.—120 tons.
Time	Set—2 days.
	Running—12 hours.
Kilowatt-hours	Used 131.
	Per ton put in—1.09.
Horse-power	A 20 h.p. motor was used.
	Demand not noted.
Tons per hour	10.
Cost	Total at 4 ct. per kw-hr., $5.24.
	Per ton put in—4.37 ct.
Distance to field	50 rods.
Labor	4 teams and drivers and 4 men.
Condition of corn	Dry.
Length of cut	½ inch.
Details of box	"Bell No. 60" with automatic feed table.
Speed	865 r.p.m.

Outfit No. 5

Farm No. 1

Height to elevate	35 ft.
Capacity	14 ft. by 35 ft.—125 tons.
Amount put in	14 ft. by 8 ft.—1,232 cu. ft.—27.7 tons.
Time	Set—.5 days.
	Running—2 hours.
Kilowatt-hours	Used 20.
	Per ton put in—.725 ct.
Horse-power	A 20 h.p. motor used.
	Demand not noted.
Tons per hour	13.8.
Cost	Total at 4 ct. per kw-hr., $0.80.
	Per ton put in—2.9 ct.
Labor	Not noted.
Condition of corn	Dry.
Length of Cut	¾ inch.
Details of box	"Bell No. 60" with automatic feed table.
Speed	900 r.p.m.

Farm No. 2

Silo	12.7 ft. by 41.5 ft.
Heights to elevate	40 ft.
Capacity	5,241 cu. ft.—129 tons.
Amount put in	Full.
Time	Set—1.5 days.
	Running—10.25 hours.
Kilowatt-hours	Used 158.
	Per ton put in—1.23.
Horse-power	A 20 h.p. motor used.
	Demand not noted.
Tons per hour	12.6.
Distance to field	20 rods.
Cost	Total at 4 ct. per kw-hr., $7.32.
	Per ton put in, 5.7 ct.
Labor	Not noted.
Condition of corn	Dry.
Length of cut	⅜ inch.
Details of box	"Bell No. 60" with automatic feed table.
Speed	900 r.p.m.

Farm No. 3

Silo	14 ft. by 30 ft.
Height to elevate	27 ft.
Capacity	4,620 cu. ft.—100 tons.
Amount put in	Full.
Time	Set—1 day.
	Running—7.5 hours.
Kilowatt-hours	Used 153.
	Per ton put in, 1.53.
Horse-power	A 20 h.p. motor used.
	Demand not noted.
Tons per hour	13.3.
Cost	Total at 4 ct. per kw-hr., $6.12.
	Per ton put in, 6.12 ct.
Distance to field	30 rods.
Labor	Not noted.
Condition of corn	A little green.
Length of cut	¾ inch.
Details of box	"Bell No. 60" with automatic feed table.
Speed	900 r.p.m.

Farm No. 4

Silo	15 ft. by 30 ft.
Height to elevate	30 ft.
Capacity	5,391 cu. ft.—110 tons.
Amount put in	Full.
Time	Set—2 days.
	Running—10.7 hours.
Kilowatt-hours	Used, 168.
	Per ton put in, 1.53.
Horse-power	A 20 h.p. motor used.
	Demand not noted.
Tons per hour	10.3.
Cost	Total at 4 ct. per kw-hr., $6.72.
	Per ton put in, 6.11 ct.
Distance to field	50 rods.
Labor	4 teams and drivers and 3 men.
Condition of corn	Medium.
Length of cut	¾ inch.
Details of box	"Bell No. 60" with automatic feed table.
Speed	900 r.p.m.

NOTE—A stone went through the box, wrecking knives, fans and ledger plate.

Farm No. 5

Silo	14 ft. by 30 ft.
Height to elevate	32 ft.
Capacity	4,617 cu. ft.—100 tons.
Amount put in	Full.
Time	Set—1.5 days. Running—10.33 hours.
Kilowatt-hours	Used, 167. Per ton put in, 1.67.
Horse-power	A 20 h.p. motor used. Demand not noted.
Tons per hour	9.66.
Cost	Total at 4 ct. per kw-hr., $6.68. Per ton put in, 6.68 ct.
Distance to field	30 rods.
Labor	4 teams and drivers and 3 men.
Condition of corn	Very heavy—quite green.
Length of cut	¾ inch.
Details of box	"Bell No. 60" with automatic feed table.
Speed	900 r.p.m.

Farm No. 6

Silo	14 ft. by 30 ft.
Height to elevate	32 ft.
Capacity	4,617 cu ft.—100 tons.
Amount put in	Full.
Time	Set—1.5 days. Running—89 hours.
Kilowatt-hours	Used, 140. Per ton put in, 1.4.
Horse-power	A 20 h.p. motor was used. Demand not noted.
Tons per hour	11.2.
Cost	Total at 4 ct. per kw-hr., $6.40. Per ton put in, 6.4 ct.
Distance to field	30 rods.
Labor	4 teams and drivers and 3 men.
Condition of corn	Good, quite green.
Length of cut	¾ inch.
Details of box	"Bell No. 60" with automatic feed table.
Speed	900 r.p.m.

Farm No. 7

Silo	12 ft. by 40 ft.
Height to elevate	30 ft.
Capacity	4,524 cu ft.—121 tons.
Amount put in	Full.
Time	Set—4 days (Sunday and holiday included).
	Running, 10.5 hours.
Kilowatt-hours	Used, 216.
	Per ton put in, 1.79.
Horse-power	A 20 h.p. motor was used.
	Demand 12 h.p. to 40 h.p. (later due to wet corn).
Tons per hour	11.52.
Cost	Total at 4 ct. per kw-hr., $8.64.
	Per ton put in, 7.15 ct.
Distance to field	100 rods.
	5 teams and drivers and 4 men.
Condition of corn	Dry part of time, then very wet.
Length of cut.	¾ and ½ inch.
Details of box	"Bell No. 60" with automatic feed table.
Speed	900 and 1,000 r.p.m.

NOTE—It was found that with ½-inch cut and wet corn the amount of power needed to cut and elevate corn was greater than 40 h.p.; in fact, it is probably impossible under some conditions.

RURAL APPLICATIONS OF ELECTRICITY

General

The amount of business that there is in the rural districts, by reason of the fact that the farms are large in a good many sections, makes it necessary for the Commission to proceed with caution.

The advantages of electric power over that which is at present in use —steam, gasoline, wind-mill and sweep power, are quite apparent to the farmer in most districts, but the question with him is how he can apply the power so as to receive full value for the money expended per year for service and power. Until quite recently, the farmer in most districts would not concede that his time is worth so much per hour, as well as the time of his men, the members of his family and his teams. In order to make a fair comparison between the cost by present methods and by electric drive, it is necessary to take into consideration the saving of time, whether it is work that is done by himself or his help, or whether it is borrowed help which he has to pay back, such as the system which is in vogue for giving assistance during periods when thrashing and silo-filling is being done.

The development of this class of business must necessarily be allied with the development of the system for serving other municipalities in the district. As service cannot be taken direct from the high-tension or low-tension lines which are run through the country, it must be taken from a step-down station at which a voltage that is suitable for use for rural distribution is available. This means that in some cases lines will have to be duplicated on the same set of poles—the rural line being run below the low-tension lines.

The uses of electricity in rural sections may be classified as follows:

Service to the farm for lighting, power and cooking, including power for thrashing and silo-filling.

Service to rural plants which use power, such as brick-yards, tile-yards, saw mills, cheese factories, butter factories, pumps for reclamation and irrigation, chopping mills, flour mills, beet sugar factories, sand and gravel plants, railway pumping stations, quarries, institutional schools and farms.

Service for lighting of hamlets.

Power

Industrial Plants in Rural Districts.

Brick and Tile Yards

In general farming districts there are a considerable number of brick and tile yards—nearly every township having from two to five.

The amount of power needed by each of these varies from 20 to 50 h.p., depending on the size of the plant. The operation varies greatly also. In the medium-sized yard, two 10-hour days per week of run is about the average.

The season which these yards are operated is about 7 months.

Occasionally a saw mill is operated in conjunction with a tile yard.

Saw Mills

In most of the rural sections, there is at least one saw mill per township. Many of them are operated in connection with some other rural industry.

At least three-quarters of them have enough scrap from the plant in the way of saw-dust, slabs and cuttings to furnish fuel for the plant; therefore, most of them operate by steam.

Butter and Cheese Factories

There are usually about 4 cheese and butter factories per township.

The average cheese factory needs 5 h.p., but since they use steam for cleansing and other processes of manufacture, most of these plants are operated by steam, though a number use Hydro power for pumping, etc.

Occasionally one of these plants is found handling large quantities of cream for delivery to the cities, and in these cases they use a great deal more power.

Pumping for Reclamation and Irrigation

So far there are no reclamation farm pumps being operated on the Hydro system, but as Hydro service is now being installed in at least two districts where reclamation pumping is being done, this is one of the possibilities for the uses of power. The pumps now in use in these districts handle very large quantities of water against a very low head: the amount of power for amount of water handled is low. During the rainy season these pumps operate for a considerable period at a time. The amount of power varies from 25 h.p. up, according to the area of the reclaimed land that is drained to the ditch that the pump is keeping clear.

Very little irrigation work is being done in Ontario, so far, but according to the results obtained in the districts where the rainfall is almost equal to that which we have in Ontario, we feel quite certain that, with power at cost, irrigation is a decided possibility in this district. The amount of power that would be used for this purpose would vary from—say—2 h.p. for a small market-gardening plant, to perhaps 50 h.p. for a large farm.

Chopping Mills

In all dairy and stock-raising districts in Ontario, chopped grains are fed, and as so far few farmers have had equipment on their places in a convenient form. We find from 4 to 12 chopping mills per township. These mills vary from the 11-in. chopper of the one stationary and one rotating blade type, which takes 10 to 15 h.p., to the 24 in. attrition chopper which takes 35 h.p.

Most of these mills have oat rolls and elevators.

Quite a number of them in the different parts of the country that have gasoline engines, which, owing to the high cost of gasoline per unit of grain output of the mill, have suspended operation. Two, at least, of these have come back into service by reason of "Hydro" power being available for their use.

Flour Mills

These are not often found in rural districts unless located on some stream where they have water power for at least part of the time. A few of them have gasolene engines as a reserve power.

In almost every case where service is installed, mills which have reserve power of either steam or gasoline change to electric drive. Chopper and oat rolls are part of the equipment of the mill.

These mills vary in size from 2 barrels per hour up, sometimes taking 40 h.p. or more.

Beet Sugar Factories

There are a few beet sugar factories in the sections of Ontario in which "Hydro" power is now being served. None of these at present are located in rural districts.

We find that, in the United States, a number of these are reported as being rural power users. Their plant should be located in rural districts and it may be possible that if power has not been available, it is one of the reasons we have not more of these plants. They take large amounts of power.

Gravel Plants

Gravel pits are found in most townships in the Province.

Power is used for shovels, screening and sorting of gravel and loading by bucket elevators. Many of the present pits are not equipped with power.

When electric power is available, there is little doubt but that small plants will be installed in many of the gravel pits from which gravel is taken for road-making. A small one would be inexpensive, and as a great effort is being made in the Province for the betterment of roads, it seems to us that power being available for this work would make it possible to have improved roads at low cost.

Screeners, elevators and a small stone crusher could be operated with a 5 h.p. motor.

Railway Pumping Stations

In many parts of the Province the water tanks on our railway systems must be located where the best water is available for use for the locomotives.

In these sections where electric power is available an automatic pumping system would be possible, and thus minimize the cost of operating such a plant, a small amount of attention per week to see that the pump is in proper order and both the pump and motor oiled being all that is necessary. A float switch in the tank would control the motor, keeping the tank filled within limits set for throwing the power on and off at the points the float is set for.

The amount of power that would be needed by this equipment would vary according to whether the tank was on a main or a branch line—the smallest probably being not less than 2 h.p.

Quarries

In many of the sections in Ontario through which power lines run there are limestone quarries where large quantities of stone are taken out each year. The amount of power that is used at these quarries, of course, varies with local conditions, that is, as to whether the quarry is flooded with water, the depth, the lighting arrangements and the use that the stone is being put to. The amount of the power used varies from 35 h.p. to 100.

Institutional Schools and Farms

In the carrying out of present reform methods, a number of these institutions are located in rural districts, boys schools, prison farms, homes for the friendless, etc. At all of these places there is a considerable population. Power is, therefore, needed to provide supplies of hard and soft water, as well as power for laundry purposes, and in the barn and dairy. The demands for power in these institutions vary from 5 h.p. to 25 h.p.

Farm Applications

LIGHTING

The farmers in the districts that are being served greatly appreciate the improved condition on their places by reason of having electric light in the house, barn, drive, shed and yard. With previous forms of lighting, the dull appearance of the place from the road and from the yard had a depressing effect. The contrast that is the result of installing electric light makes homes in these districts so exceedingly comfortable that it will probably be beneficial in keeping the young people on the farm. In addition to this, the decrease of fire risk on the premises due to the absence of coal oil lanterns and lamps is one of the features that is usually considered by the farmer in arriving at a conclusion regarding the installation of electric service on his premises.

Installations in barns are now being made in conduit, as it is found necessary for the protection of the wires and fittings.

The cost of installation varies in the different districts according to conditions; the open wiring from $1.25 to $1.75 per outlet and the concealed wiring from $1.50 to $2.25 per outlet.

Conduit installations in the open; that is, in barns and farm buildings, vary from $3.25 to $4.50 per outlet.

The outlet in each of the above cases is the opening for either fixture or switch and does not include (except in cases where drop cord is used) the fixture, but does include the switches.

DOMESTIC AND SYNDICATE USES

Below are submitted some tables showing the uses of electricity on the farm for domestic purposes, for power in the barn, as well as for the large and small motor outfits for threshing, silo-filling, etc.

Most of the data submitted is taken from notes that are made from time to time by the men at the work, and in some cases show a discrepancy such as in the threshing of the Waterloo Township Syndicate No. 1, which discrepancy is probably due to over or under reading the meter at some place.

The results secured upon six farms located in various parts of the Province and employing power for milking, grinding, separating cream, cutting dry corn, heating water, lighting, silo-filling, threshing and various domestic uses are also given below.

Threshing

Township	Farm Number	Time		Grain in Bushels				Bushel per Hour	Total Kw-hr.	Average Bushel per Kw-hr.	Bushel per Kw-hr.	Cost.			Notes
		Set Days	Running Hours	Wheat	Oats or Mixed	Barley	Total					At 4½c. per Kw-hr.	Per 100 Bush. at 4½c. per Kw-hr.	If done by Steam by Custom Rig.	
												$ c.	c.		
E. Nissouri ...	No. 1	2	15⅙	231	1,312	474	2,017	133.5	280	.1388	7.3	12 60	62.95	16½ hr. at $1.75 = $28.87	Sawyer Massey 36-in. separator with band cutter, automatic table, tailings elevator, chaff and straw blowers and straw cutter, the latter out of order and not used
N. Oxford	No. 2	1	9½	....	1,380	.....	1,380	145.2	174	.126	7.93	7 83	56.7	9½ hr. at $1.75 = $16.62	
N. Norwich ...	No. 2	1	6⅚	....	710	.....	710	103.	130	.183	5.4	5 85	82.4	7 hr. at $1.00 = $7.00	
Waterloo ...														By Syndicate rig.	For Engine only (syndicate outfit)
	No. 1	.....	34	760	2,000	240	3,000	88.2	297	.099	10.4	13 37	44.57	34 hr. at $1.00 = $34.00	Engine only, if done by steam, at $1.00 per hour
	No. 2	.....	30	540	1,395	175	2,290	76.3	665	.29	3.4	29 93	131.1	30 hr. at $1.00 = $30.00	Record of work kept by men at it —there is a discrepancy in the items, but the total is correct. Threshing from field may account for some of it
	No. 3	.....	14½	275	1,500	90 Peas	1,775	122.3	268	.151	6.63	12 06	67.94	14½ hr. at $1.00 = $14.50	
	No. 4	.....	15	250	1,500	.....	1,750	116.66	286	.163	6.12	12 87	73.5	15 hr. at $1.00 = $15.00	
	No. 5	.....	35	540	1,790	380	2,710	77.5	540	.199	5.02	24 30	89.	35 hr. at $1.00 = $35.00	The Separator was a 36-44 Waterloo with all attachments, including straw cutter
	No. 6	.....	21	550	1,620	200	2,370	112.8	452	.19	5.24	24 30	102.5	21 hr. at $1.00 = $21.00	

Waterloo Township Syndicate

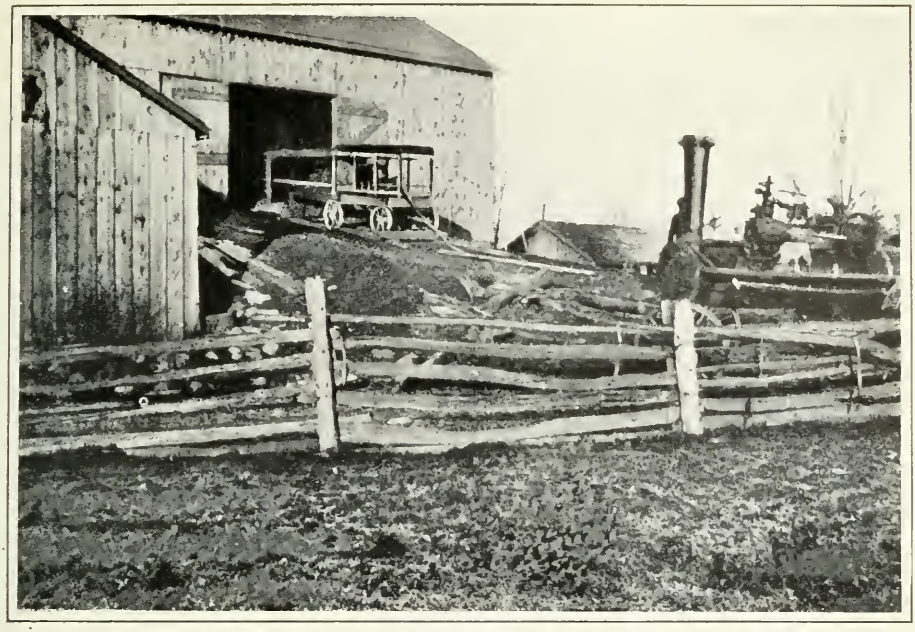
SILO-FILLING

Farm No. 1

Silo	14 ft. by 39 ft. round.
Height to elevate	Not noted.
Capacity	6,002 cu. ft.—145 tons.
Amount put in	36 ft. 5,540 cu. ft.—133.83 tons.
Time	Set—not noted. Running—12 hours.
Kilowatt-hours	Used, 372. Per ton put in, 2.57.
Horse-power	A 20 h.p. motor used. Demand not noted.
Tons per hour	11.15.
Cost	Total at 4 ct. per kw-hr. $14.88. Per ton put in, 11.11 ct.
Distance to field	Not reported, approximately 20 rods.
Labor	Not reported.
Condition of corn	Medium.
Length of cut	½ inch.
Details of box	"Climax" with automatic feed table.
Speed	Not reported, approximately 900 r.p.m.

Farm No. 2

Silo	12 ft. by 42 ft. round.
Height to elevate	Not noted.
Capacity	4,750 cu. ft.—128 tons.
Amount put in	39 ft. 4,411 cu. ft. 119.1 tons.
Time	Set—not noted. Running—10 hours.
Kilowatt-hours	Used, 183. Per ton put in, 1.43.
Horse-power	A 20 h.p. motor used. Demand not noted.
Tons per hour	11.91.
Cost	Total at 4 ct. per kw-hr., $7.32. Per ton put in, 6.14 ct.
Distance to field	Not reported.
Labor	Not reported.
Condition of corn	Medium.
Length of cut	½ inch.
Details of box	"Climax" with automatic feed table.
Speed	Not reported, approximately 900 r.p.m.



Electric Motor Supplanting the Steam Engine at Threshing—E. Nissouri Township

Threshing by "Hydro-Electric" Power –Waterloo Township

Farm No. 3

Silo	11 ft. by 30 ft.
Height to elevate	Not noted.
Capacity	2,850 cu. ft.—58 tons.
Amount put in	Full.
Time	Set—not noted. Running—7 hours.
Kilowatt-hours	Used, 58. Per ton put in—1.
Horse-power	A 20 h.p. motor used. Demand not noted.
Tons per hour	8.3.
Cost	Total at 4 ct. per kw-hr., $2.32. Per ton put in, 4 ct.
Distance to field	Not noted.
Labor	Not noted.
Condition of corn	Not noted.
Length of cut	½ inch.
Details of box	"Climax" with automatic feed table.
Speed	Not reported, approximately 900 r.p.m.

Farm No. 4

Silos	22 ft. by 8 ft. by 9 ft. 22 ft. by 9 ft. by 10 ft.
Height to elevate	Not noted.
Capacity	3,564 cu. ft.—54 tons.
Amount put in	Full.
Time	Set—not noted. Running—7.5 hours.
Kilowatt-hours	Used 58. Per ton put in, 1.06.
Horse-power	A 20 h.p. motor used. Demand not noted.
Tons per hour	7.73.
Cost	Total at 4 ct. per kw-hr., $2.32. Per ton put in, 4.3 ct.
Distance to field	Not noted.
Labor	Not noted.
Condition of corn	Medium.
Length of cut	½ inch.
Details of box	"Climax" with automatic feed table.
Speed	Not reported, approximately 900 r.p.m.

Farm No. 5

Silo	12 ft. by 40 ft.
Height to elevate	Not noted.
Capacity	4,524 cu. ft.—121 tons.
Amount put in	Full.
Time	Set—not noted. Running—10 hours.
Kilowatt-hours	Used, 135. Per ton put in, 1.11.
Horse-power	A 20 h.p. motor was used. Demand not noted.
Tons per hour	12.1.
Cost	Total at 4 ct. per kw-hr., $5.40. Per ton put in, 4.46 ct.
Distance to field	Not noted.
Labor	Not noted.
Condition of corn	Medium.
Length of cut	½ inch.
Details of box	"Climax" with automatic feed table.
Speed	Not reported, approximately 900 r.p.m.

Farm No 6

Silo	14 ft. by 29 ft.
Height to elevate	Not noted.
Capacity	4,463 cu. ft.—95 tons.
Amount put in	Full.
Time	Set—not noted. Running—9 hours.
Kilowatt-hours	Used, 90. Per ton put in, 95.
Horse-power	A 20 h.p. motor was used. Demand not noted.
Tons per hour	10.55.
Cost	Total at 4 ct. per kw-hr., $3.60. Per ton put in, 3.8 ct.
Distance to field	Not noted.
Labor	Not noted.
Condition of corn	Medium.
Length of cut	½ inch.
Details of box	"Climax" with automatic feed table.
Speed	Not noted, approximately 900 r.p.m.

Waterloo Township Syndicate No. 1

6 FARMERS

Domestic Uses and Syndicate Motor Uses

Rate Service Charge $2.40 per Month Power Charge 4½c. per Kw-hr. Discount from Power Charge only 10 per cent.	Domestic							Syndicate Motor		Total Dom. and Syn. Motor Kilowatt-Hours for Year	Cost per Year		
	Kilowatt-Hours							Kilowatt-Hours.					
	Sept.	Oct.	Nov.	Dec.	Total	Average per day	Estimated for a year	Aug. 1 to Oct. 23	Estimated for a year		Current	Service Charge	Total
											$ c.	$ c.	$ c.
Farm No. 1	22	27	27	26	102	.84	306	669	836	1,142	46 25	30 00	76 25
Farm No. 2	27	32	49	49	157	1.29	471	848	1,060	1,531	62 00	30 00	92 00
Farm No. 3	22	31	36	37	126	1.04	368	685	856	1,224	49 58	30 00	79 58
Farm No. 4	15	26	28	29	98	.8	294	404	505	799	32 36	30 00	62 36
Farm No. 5	19	29	37	33	118	.97	354	348	435	789	31 95	30 00	61 95
Farm No. 6	15	13	30	41	99	.82	297	597	746	1,043	42 24	30 00	72 24
Totals	120	158	207	215	700	5.76	2,090	3,551	4,438	6,528	264 38	30 00	444 38
Farm No. 7	Inside	Water	loo.	.....	.....	.....	.....	.....	400	400	.....	.....	.....

NOTE—No utensils or motors other than the Syndicate Motor in use, but are included in estimate of annual uses.

Farm No. 1

Operation	Times used per Year	Used each Time	Total Hours used per Year	H.P. of Motor	Consumption		Cost		Notes
					Demand in Kw.	Kw-hr. for the Year	Total	Unit	
							$ c.		
Milking	730	1.34 hr.	975	2	1.2	1,170	19.06	.065 ct.	36 to 50 Cows
Grinding									Started Jan. 1915
Washing Bottles	120	.34 hr.	40	2	.7	28	.45	.375 ct. per day	Once each day
Separating Cream	365	.5 hr.	182½	2	.7	127	2.04	.65 ct. per day	No note of quantity
Cutting Dry Corn	14	34 hr.	5	2	1.2	6	9	.31 ct. per feeding	28 feedings for 50 head of cattle
Electric Iron			260		.5	130	2.09	4.00 ct. per week	All of the ironing
Water Heating	300	8 hr.	2,400		.6	1,440	23.44	.39 cwt. per 100 gals.	6,000 gals. of water heated
Toaster	365	34 hr.	122		.5	111	1.80	.49 ct. per day	
Lighting						3,438	55.83	1.65 ct. per kw-hr.	
Silo-Filling				20	12 to 30	504	20.16	.67 ct. per hr.	By Syndicate outfit
Threshing									By steam

Total Kw-hr.....6,954
Excess..... 520
For Silo-Filling.. 504

Cost to user= $124.96
Average cost per Kw-hr.= 1.63 ct.
Excess and Silo-Filling 4 ct. per Kw-hr.

Farm No. 2

Operation	Time			H.P. of Motor	Current		Cost		Notes	Rate-Service charge, $3 per month Power charge, $30 per H.P. per Year Excess, 4c. per Kw-hr.
	Times used per Year	Used Each Time	Total Hr. per Year		Demand in Kw.	Kw-hr. for the Year	Total	Unit		
							$ c.			
Milking	730	1 hr.	730	3	1.7	1,241	32.27	.21ct. per cow per milking	15 to 30 cows	Average cost per Kw-hr. for all uses, excepting that of the syndicate motor 2.6 cts.
Grinding	52	3 hr.	156	5	3.75	525	13.65	.455 ct. per bush.	3,000 bush	
Separating cream									Whole milk sold	Average cost per Kw-hr, for all the uses 2.8 cts.
Sawing wood	3	4 hr.	12	5	3.75	45	1.17	3.9ct. per cord	30 cords stove wood size, rails & branch's	
Pumping	183	5 hr.	915	2	.8	732	19.03	2.8ct. per hour	From 220 ft. well	
Threshing				25	20 to 25	322	12.88	.4ct. per bush.	Approximately 3,500 bush	
Silo-Filling				25	2 to 30	402	16.08	75ct. per ton	16 ft. by 45 ft. silo.	
Heating Water	200	8 hr.	1,600		.6	960	24.96	62ct. per gal.		
Vacuum Cleaner	12	1 hr.	12	⅛	.12	1.5	.04	33ct. per hr.		
Electric Iron	52	4 hr.	208		.5	104	2.70	1.3ct. per hr.		
Washing	52	.5 hr.	26	⅛	.12	2	.05	.013ct. per hr.		
Lighting								2.6 per Kw-hr.		

Total Kw-hr	5,180	
Excess Kw-hr.	500	(Est'd)
Kw-hr. for Silo-Flling	402	
Kw-hr. for Threshing	322	

Farm No. 3

Operation	Time			H.P. of Motor	Current		Cost		Notes	Rate—Service Charge. $3.00 per Month. Power Charge—$3.00 per H.P. Year. Excess—4c. per Kw-hr.
	Times used per Year	Used Each Time	Total Hrs. per Year		Demand in Kw.	Kw-hr. for the Year	Total	Unit		
							$ c.			
Milking	660	.67 hr.	440	2	1.7	748	19 00	.18ct. per cow per milking	12 to 20 cows	Average cost per kw-hr. for all the uses, excepting that of the syndicate motor, 2.54ct.
Grinding	12	7 hr.	84	5	3.75	315	8 03	47.0 ct. per bushel	1,700 bushels of oats ground	
Separating Cream	.....	.....	.....	.....	.....	.....	.....	.....	Whole milk sold	Average cost of all uses 2.65ct. per kw-hr.
Pumping	330	1.25 hr.	412	5	1.	412	10 46	2.54ct. per hour	From well 200 feet deep	
Sawing Wood	.....	.....	.....	5	3.75	19	48	4.0 ct. per cord		
Threshing	.....	.....	.....	25	.....	216	8 64	.432ct. per bush.	Approx. 2,000 bush.	
Silo-Filling	.....	.....	.....	25	.....	178	7 12	5.6 ct. per ton	14 ft. by 35 ft. silo.	
Heating Water	250	8 hr.	2,000	.....	.6	1,200	30 48	.61ct. per gallon		
Vacuum Cleaner	44	.5 hr.	22	1/6	.12	3	08	.36ct. per hour		
Washing	36	.5 hr.	18	1/6	.12	2	05	.28ct. per hour		
Electric Iron	44	4 hr.	176	.....	.5	88	2 24	1.27ct. per hour		
Lighting	.....	.....	.....	.....	.....	1,649	41 88	2.54ct. per kw-hr.		

Total Kw-hrs.	5,224
Excess Kw-hr.	674
Kw-hr. for Silo-Filling	178
Kw-hr. for Threshing	216

Farm No. 4

Operation	Time: Times used per Year	Time: Used each Time	Time: Total Hr. per Year	H.P. of Motor	Current: Demand in Kw.	Current: Kw-hr. for the Year.	Cost: Total	Cost: Unit	Notes	Rate—Service Charge. $3 per Month. Power Charge, $30 per H.P. per Year Excess-4c. per Kw-hr.
							$ c.			
Milking	700	1.5 hr	933	5	1.82	1,274	42.57	.26ct. per cow per milking.	12 to 32 cows	Average cost per Kw-hr. for all the uses excepting that of the Syndicate Motor, 3.53c.
Grinding	36	3 hr	108	5	3.75	405	14.30	.65ct. per bush.	2,200 bushels	
Pumping	200	1.25 hr	250	2	1.	200	7.06	2.82ct. per hr.	From 180 ft. well	Average cost per Kw-hr. for all the uses 3.6 c.
Sawing wood	2	5 hr	10	5	3.75	37½	1.31	5.24ct. per cord	25 stove wood cords (rails and limbs)	
Silo-filling				25		490	19.60	4.65ct. per ton	16 ft. by 45 ft. silos	
Threshing				25		321	12.84	.37ct. per bush.		
Electric Iron	52	4 hr	208		.5	104	3.67	1.72ct. per hr.		
Heating water	60	8 hr	480		.6	288	10.17	.85ct. per gal.	1,200 gal. heated	
Lighting						1,099	38.80	3.53ct. per kw-hr.		

Total Kw-hr.	4,218
Excess kw-hr	610
Kw-hr. for Silo-Filling	490
Kw-hr. for Threshing	321

Farm No. 5

Operation	Time			H.P. of Motor	Current		Cost		Notes	Rate—Service Charge $3 per month. Power Charge, $30 per H.P. per Year.
	Times used per Year	Used each Time	Total Hr. per Year		Demand in Kw.	Kw-hr. for the Year	Total	Unit		
							$ c.			
Vacuum Cleaner	10	1 hr.	10	1-6	.12	1.2	.07	.7ct. per hr.		Average cost per kw-hr. for Domestic uses 6.27c.
Washing	22	.5 hr.	11	1-6	.12	1.3	.08	.72ct. per hr.		Average cost per kw-hr. for all the uses 5.8c.
Electric Iron	40	4 hrs.	160		.5	80	5.31	3.3ct. per hr.		Cost for threshing & silo-filling 4ct. per kw-hr.
Silo-Filling						178	7.12	5.6ct. per ton	14 ft. by 35 ft. Silo.	
Threshing						180	7.20		No record.	
Lighting						1460	91.64	6.27ct. per kw-hr.		
						1900.5				

Total Kw-hr.	1,900
Excess Kw-hr	0
Kw-hr. for Silo-Filling	178
Kw-hr. for Threshing	180

Individual Silo-Filling Outfits

Below are submitted notes on the individual outfits that were used for silo-filling. The type is noted in each case.

East Oxford Township—Farm No. 1

At this farm a small blower outfit was used, having automatic feed table, roller feed control, etc., driven by 5 horse-power motor.

Silo No. 1 14 ft. by 32 ft.
Silo No. 2 12 ft. by 32 ft.
Height to elevate 28 ft.
Amount put in—full.
Length of cut ¾ in.

As the filling was not rushed, they were both filled, but no refill. Corn was cut before filling was started, being taken from the ground and not from stooks.

The outfit was set for 6 days, running approximately 8 hours per day—a total of 48 hours for the 2 silos. 2 teams and 4 men were at work for 4½ days, and 3 teams and 5 men for 1½ days.

No meter being available, as this installation was made just previous to the silo-filling, the current used had to be approximated and was estimated at 205 kilowatt-hours.

The demand—average per minute—had also to be approximated from former tests on similar outfits and was estimated at 4½ kw.

The cost for current for the filling of these two silos at 4½c. per kilowatt-hour would be $9.22 on the assumption that all of the current would be paid for. As a matter of fact, only 60 per cent of this current was paid for as that proportion would be the amount which would be taken in excess of the 2 horse-power contract which is in force at this place. Therefore, the cost for excess while filling these two silos would be $5.54.

West Oxford—Farm No. 1

At this place the carrier type of outfit was used, driven by a 5 horse-power motor running at 1,420 revolutions per minute.

Silo 14 ft. by 35 ft.
Height to elevate 21 ft.
Length of carriers from heel to top 32 ft.
Amount put in full and refilled 5 times.
Total, approximately 100 loads.
Length of cut 1 in.

Amount of current used not noted, but approximated from the total used in that month and the total that was used for filling last year—58 kilowatt-hours.

The cost for the current for filling this silo at 4½c. per kilowatt-hour would be $2.61. As a matter of fact, under the 2 horse-power contract, only 60 per cent. of the amount of current taken would have to be paid for as excess, which would amount to $1.57.

The results at this place were exceedingly satisfactory.

This is the third year that this outfit has been used, and practically no outside labor has been used any of these years in assisting filling, the work being done by the owner and hired men with one team, the time varying from 5 to 7 days, depending on the weather and the distance from silo to field.

Dereham Township—Farm No. 1

A carrier outfit was used at this place driven by a 5 horse-power motor running at 1,420 revolutions per minute.

Silo 14 ft. by 35 ft.

Height to elevate 25 ft.

Length of cut ¾ in.

Length of carriers 40 ft.

The carriers were set at right angles to the delivery from the box, being operated through a jack.

The results at this place were not very good. Considerable difficulty was experienced in the operation of the jack, as well as with the box, the trouble with the box apparently being that the shaft was set out of centre at one end so that the alignment of the fly wheel and the frame were not true, resulting in the wheel rubbing against the frame during a part of the time.

This was another installation which was made in a rush at the beginning of the silo filling period, and no meter was available to take records. The amount of current used was approximated from results with this type of box, making some allowance for the extra load in the form of the jack and the friction which was due to the poor alignments of the parts of the box, 65 kilowatt-hours being used. This, at 4½c. per kilowatt-hour cost $2.93. The excess in the case of the 2 horse-power contract would amount to $1.76.

The box giving trouble at this place interfered with the regular arrangement that was intended to be made, that is, this man and his brother, with one or two hired men, depending on the work at their farms, would take care of the filling. The corn was all cut previous to the starting of the filling and was picked up from the ground in bringing to the silo. None of it was stacked.

The time filling was not noted because of the interruptions due to trying to make arrangements to have the faults of the box corrected.

London Township—Farm No. 1

At this place a carrier type of outfit was used, driven by a 7½ horse-power motor which was the motor that was available. A 5 horse-power would have done just as well.

Silo 11 4-12 ft. by 29 ft.

Height to elevate 26 ft.

Length of cut ¾ in.

38 ft. of carriers were permanently installed along the end of the barn making a right angle delivery through a hopper into the silo. This was covered with sheet steel covers, hinged so as to make access to the carriers easy in case of necessity.

The filling was done between times by the men on the place, the gang usually consisting of two to pitch and one on the load. The man for feeding the box coming from the field with each load.

The results were exceedingly good, no trouble being experienced with either carrier or box.

The time for filling was part of each of 4 days—approximately 28 hours total, not including refill which was made later, in doing which a few loads were brought in whenever it was found that the silo would take them.

The amount of current that was used had to be estimated, as the meter which is installed measures all the uses on the premises. It was estimated that the total was 45 kilowatt-hours. This, at 4½c. per kilowatt-hour, would be $2.03.

North Norwich Township—Farm No. 2

At this place an elevator type of outfit was used, the box being a cylinder cut machine delivering the cut material into a hopper from which the elevators took it to the top of the silo, the outfit for elevating being similar to that which was used last year with the addition of an adjustment for controlling the tension of the chain, which was installed on the lower sprocket shaft. This equipment was driven with a 5 horse-power motor which is regularly used for the power needs in one of the barns, that in which a milking machine is installed and milking cows are kept.

Three silos were filled:
No. 1, 14 ft. by 35 ft.
No. 2, 14 ft. by 32 ft.
No. 3, 14 ft. by 35 ft.
The length of cut being ½ in.

Height to elevate being the full height of the silo in each case.

The time for filling No. 3 was 6 days, the labor 7 men and 3 teams. The results were exceedingly satisfactory, although some trouble was experienced through the breaking of one of the castings on the box which was new.

The amount of electricity used was approximated from the readings which were taken at the one place, the total being 168 kilowatt-hours for the 3 silos which, at 4½c. per kilowatt-hour, amounts to $7.56.

As a 2 horse-power contract is in force at this place, the amount of current which had to be paid for is in excess only over and above the amount of contracts, being $4.54.

Note.—This includes refill on two silos, but not on the third.

North Oxford—Farm No. 1

The outfit that was used at this place was the carrier type, the carriers being new apparatus this year, the box being one that has been on the place for a good many years.

Silo 16 ft. by 42 ft.
Height to elevate 37.
Length of cut ¾ in.
Length of carriers 50 ft.

This was driven by a 5 horse-power motor which was belted temporarily to the box alongside the silo.

The results were very good, no trouble being experienced with the carrier or motor. Owing to the box being old and the knives being used for a considerable length of time there was some little trouble in keeping the knives sharpened, probably due to the fact that the temper had been drawn out of them by constant sharpening.

This outfit was set for approximately 2 weeks, filling being done at intervals as found convenient, but so arranged that no mould formed on the corn.

The results were satisfactory to the owner, the only objection that he raised was that he thought perhaps a larger motor would be better. In this there is little doubt that he was mistaken, as the fault was in the box. By overhauling the box, correcting the faults in the bearings and other points where there was undue friction, there is no doubt but that the results would be as good with a 5 horse-power motor as with the 7½.

It is estimated that the amount of current used was 210 kilowatt-hours which, at 4½c. per kilowatt-hour would cost $9.45. As this place is being served under a 2 horse-power contract only the current which was taken in excess of the contract must be paid for as excess. The amount for the excess at the same rate per kilowatt-hour was $5.67.

In addition to these, there were a few other places on which individual silo-filling outfits were reported as being used, but on which no notes were obtained.

The details submitted in notes were taken in each case by the man operating the outfit, and therefore are only general. The amount of the cost as indicated by the kilowatt-hours that are estimated as being used is close enough for estimating purposes, under similar conditions, on any farm, as these computations are based on notes that were taken during the period of silo filling last year with similar equipments.

MUNICIPAL UNDERGROUND CONSTRUCTION

The report for the preceding year stated that eleven municipalities had consulted the Commission with regard to their Underground Systems, and that a considerable amount of construction work had been undertaken under the Commission's supervision. During the past year eleven other municipalities have been added to this list and have received advice pertaining to underground construction and ornamental street lighting, these two questions often being considered together.

Attention is called particularly to the Joint Conduit System, which has been successfully completed in Hamilton, and to the underground distribution system which has been installed in Kingston in conjunction with the removal of unsightly wooden poles. In ornamental street lighting the recently developed nitrogen-filled lamp has been utilized to advantage and complete installations of these lamps were made first in Hamilton and Stratford, of the multiple and series type respectively. The installation of ornamental lighting on the streets of Windsor is notable in that practically the whole of the city is illuminated by ornamental standards fed by cables laid underground.

A brief description of the work in each municipality follows:—

Baden

Conduit, lead covered cable and cable terminals were supplied and installed for a 4,000-volt underground service supplying the plant of the Dominion Linseed Oil Company at Baden. The installation was made in December, 1913.

Belleville

Following a request from this municipality for advice regarding a new street lighting system, the Commission made a study of the installation which the local distributing company proposed to supply. While the new system was to cover the whole city, the section of most interest was the "White Way" for Front and Bridge Streets. This consisted of 44 ornamental standards with pendant fixtures enclosing 500 watt, gas-filled, tungsten lamps.

Due to the Commission's efforts the municipality was enabled to obtain a reduction of $13.85 in the annual charge for each of the above lighting units.

The installation was completed in September, 1914.

Berlin

During the year Berlin has been supplied with materials for underground construction, including conduit, lead covered cables and cable terminals, also a subway type transformer.

Galt

The ornamental street lighting system has been considerably extended during the year. There are now in operation 191 single-light standards, 28 three-light clusters, 10 five-light clusters, and 22 four-light brackets mounted on street railway poles.

Work is now under way on Main and Dickson Streets, where single-light units with 500 watt, nitrogen-filled lamps will be installed.

Guelph

A change in the ornamental lighting on the main street is under consideration with the object of increasing the amount of illumination. Nitrogen-filled lamps will probably be used to replace the existing vacuum lamps. A report on the increased annual cost by reason of the change is now being prepared.

The municipality is also considering the installation of ornamental lighting on one of the residential streets.

Hamilton

The work on the Hamilton Underground Conduit System, which was commenced in September, 1913, was completed in June, 1914. This system was constructed in accordance with orders issued by the Board of Railway Commissioners for Canada and the Hydro-Electric Power Commission, and was installed by the municipality for the joint use of the Hamilton Hydro-Electric Department, the Hamilton Cataract Power, Light and Traction Co. and affiliated companies, the Canadian Pacific Railway Telegraph Co., and the Great North Western Telegraph Co.

The conduits are laid under streets over a distance of 8 miles, the total number of feet of conduit laid was 744,827 of which 553,205 feet were clay conduit and 191,622 feet were fibre conduit; 237 manholes were constructed, including a number of transformer vaults; 376 Service Boxes were built and 704 entries made into consumers' premises.

The Hamilton Hydro-Electric Department has already made use of the system and has installed approximately 156,000 feet of cable.

Hamilton has also installed in conjunction with the above work a "White Way" consisting of 402 ornamental cast-iron standards of original design supporting pole top fixtures which enclose 500 watt, nitrogen-filled lamps. These lamps were put into operation on July 1st, 1914.

Kingston

The conduits for the underground system were laid during the period from September to December, 1913, and the drawing in and jointing of the cables followed without delay. Steel poles were erected to replace the existing wooden poles used for supporting the span wires of the street railway. On the steel poles ornamental brackets were mounted supporting magnetite arc lamps.

On certain streets where railway poles were not required there were erected ornamental standards with magnetite arc lamps.

The whole of the commercial district is covered by the above system.

In this district all street lighting circuits, power and lighting feeders and services to private consumers are now carried in the underground conduits, and the appearance of the streets is thus greatly improved.

Approximately 55,000 feet of clay ducts and service pipes were laid; 28 manholes and 99 service boxes were built; service pipes were run to 254 consumers and to 96 street lighting units; 42,240 feet of cables were laid in the ducts for various circuits, including street lighting, power and lighting primaries and secondaries and service taps to consumers, and street railway feeders. All the cable was installed by day labor. After the cables were connected together a careful test was made to determine the conditions, due to current from the street railway system, which might injuriously affect the cable. Following this precautions were taken to avoid damage from the electrolysis.

Kingston—Princess St. before Removal of Overhead Wires

Kingston—Princess St. after Removal of Overhead Wires

Street Lighting Standard—Belleville

Street Lighting Standard—Stratford

In addition to the above 90 railway poles and 36 ornamental standards were erected by day labor.

The total number of arc lamps installed is 96; these are spaced at 140 feet apart and "staggered" thus providing an exceedingly good distribution of light. The lamps are mounted on the trolley poles at 16 feet from the ground and on the ornamental standards at 14 feet 6 inches from the ground. The lamps are of the direct-current luminous arc type and are fed from two 50-light rectifier sets placed in the substation.

As fast as the services to consumers were changed from "overhead" to "underground", the overhead wires were removed, and as the telephone poles and wires and the wooden poles of the street railway had been previously removed, the streets were thus left with a minimum of overhead construction.

The estimated cost of the whole work was $60,600, and the actual cost $60,134.

London

An inspection and report was made in February, 1914, on the existing underground conduit system for the purpose of determining how this system could be utilized in the event of all the poles and overhead wires of the various electric power and signal companies being removed from the streets throughout the downtown district.

The municipality was advised of the conditions under which the existing ducts could be used as a joint system containing the cables of the different companies.

Investigation was also made as to the possible disposition of the main and distributor lines of the telegraph, telephone and lighting and power systems.

Some preliminary work has been done looking to a general improvement in the street-lighting system both in the commercial and residential districts.

Midland

The municipality of Midland has applied to the Commission for plans and estimates for an underground system of street lighting and general power distribution. Installation will probably be made during 1915.

Paris

The underground conduit work mentioned in last year's report was completed in January, 1914. The work included a 15-duct "run" of clay conduit with concrete manholes, which connected the substation with the aerial lines. Lead covered cables providing for 3 feeders for street lighting, 3 feeders for general lighting and power and 2 feeders to the waterworks were laid in these ducts.

The installation of the ornamental lighting standards for Grand River Street has been temporarily delayed, but will probably be proceeded with during the coming year.

Port Arthur

A request was received from the Port Arthur Commissioner of Utilities during the past year for a recommendation in connection with an ornamental system of lighting for the streets of Mariday Park.

After investigation a recommendation was submitted specifying the type of lighting standards and the method of feeding them, accompanied by an estimate of the cost of the installation.

The property owners are to be assessed on the Local Improvement plan and it is expected that the system will be installed during the coming year.

Preston

Plans and estimates for alternative systems of ornamental street lighting were prepared and forwarded to the Municipality during the year. A nitrogen filled type of lamp operated on a series circuit was proposed.

These lamps may be mounted on ornamental standards and "fed" from an underground cable, or else may be mounted on ornamental brackets placed on street railway poles. If the latter suggestion is adopted new steel poles will be erected jointly by the Municipality and the Railway Company and the lamps supplied with current either by an overhead wire or an underground cable.

It is quite probable that this work will be installed in 1915. The initial installation will extend along Main Street, for 2,170 ft., and ultimately the system will be increased to slightly more than 6,000 feet.

Renfrew

Estimates and plans have been prepared and submitted to the municipality of Renfrew for a new and complete system of street lighting, including a "White Way" installation for the Main Street. Several ornamental standards have also been installed to show the type suggested for the "White Way."

The By-law authorizing the raising of the necessary funds was passed by a large majority on July 15th, 1914.

Owing to the unfavorable financial conditions which ensued shortly thereafter, it was decided to postpone the work for the time being. However, as the improvement is much needed it is not likely that installation will be long delayed.

St. Catharines

Information relative to various types of ornamental street lighting standards both for commercial and residential districts as well as the best methods of feeding the standards by underground cables has already been supplied to St. Catharines, and several standards sent to the Municipality and erected complete with fixtures for exhibition. Annual and capital costs were also estimated for the various systems proposed.

A choice is to be made in the near future from the different propositions suggested, and St. Catharines is assured of the latest developments in street lighting systems.

St. Thomas

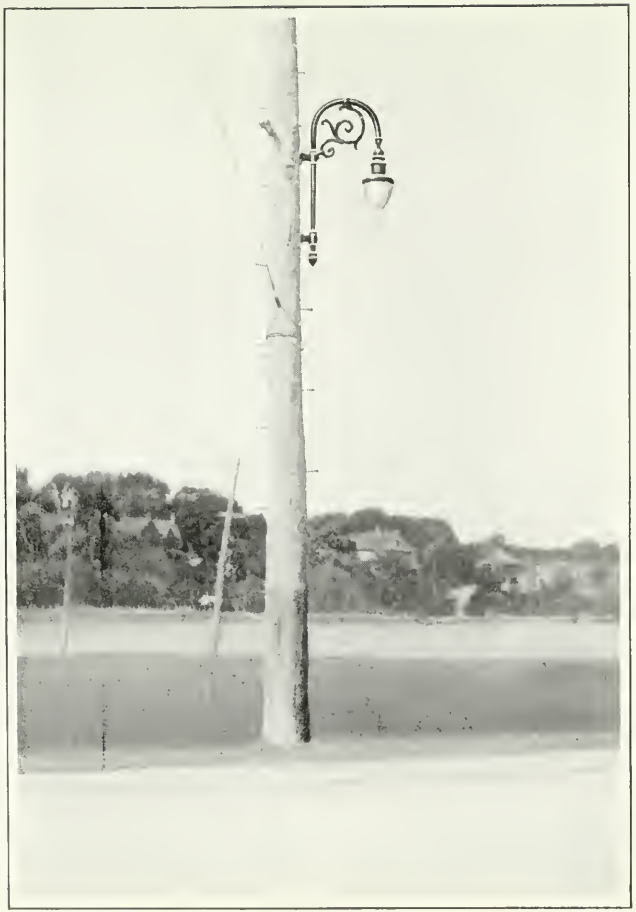
The St. Thomas Hydro-Electric Commission in July, 1914, decided to make a change in the lighting on Talbot Street and the rearranging of the system was placed in the hands of the Commission. The equipment for the new system has been ordered and installation work will be commenced shortly.

The section to be improved is from Alma Street to Stanley Street on Talbot Street. The plans include the removal of all existing overhead wires, excepting only the trolley wires and cross spans. All wooden poles are to be removed and combination railway and lighting poles of tubular steel will be erected. A total number of 106 poles is required, each of which will support a lighting bracket in addition to the trolley wire. The brackets are to be of the "Bishop's Crook" type of special design embodying the St. Thomas Municipal Coat-of-Arms, with pendant lamp fixtures.

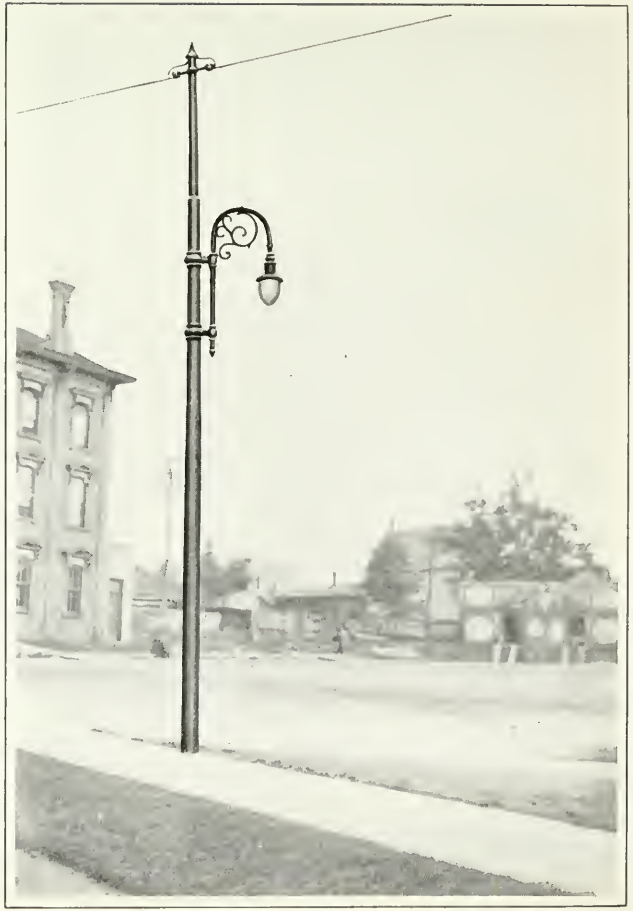
Nitrogen-filled 500 watts series lamps, mounted 16 feet from the pavement are to be used and will illuminate one mile of the Main Street, covering most of the commercial district. In the near future the street lighting in all parts of the City is to be improved.

Lighting Standards on Main Street—Galt

Residential Street Lighting—Galt



Lighting Unit on Wooden Pole—Stratford



Combination Railway and Lighting Pole—Stratford

Stratford

A By-law was passed in Stratford on May 18th, 1914, authorizing the expenditure of $22,000 for improvements to the street lighting system, and the removal of wooden poles and overhead wires from the main streets in the central part of the city. Equipment was ordered and actual work of installation started on July 6th and the lighting system was completed and placed in service on 31st of July.

This work included the installation of 11 ornamental lighting standards about the City Hall, which were supplied with current from lead covered cables laid underground in fibre duct; also the erection of 164 steel poles which are to serve the double purpose of supporting the street railway span wire and the ornamental street lighting bracket. This latter is mounted with the lamp 16 feet from the ground; the lamps on the poles and on the standards being at the same height. The bracket is of the same design as the upper part of the standard so that the two units are similar in appearance.

The lamps on the railway poles were fed by a single overhead wire, which is inconspicuous, and thereby permits the extension of the system over a greater length of street than would have been advisable if it had been necessary to install underground cable.

The lamps are of the nitrogen-filled type, 500 watts, operating on 6.6 ampere circuit. Three constant current transformers were installed in the substation to provide for the increased load and the lamps are so arranged that two circuits are cut off at midnight, thus effecting a great saving in lamp renewals. Provision is made for the operation of enough lamps on the "all-night" circuits to light the streets sufficiently after midnight.

Poles are being erected in the rear of the buildings for the purpose of serving private consumers, while the old wooden poles are being removed from the main streets as the work in the rear progresses. The cost of the work completed to date is well under the estimate.

Welland

Additional submarine cable and terminals were supplied for a crossing under the Welland Canal in order to deliver power to Grantham Township.

Weston

At the request of the Municipality of Weston the Commission made a study of the question of ornamental lighting for Main Street. Following this a recommendation was made for 22 single-light units, using a gas-filled lamp operated on a series circuit.

An estimate of the cost, with plans, was also submitted to the local Commission, and it is expected that the installation will be made shortly.

Windsor

Windsor has now in the course of installation a system of ornamental street lighting which has many points of interest, and which in some respects is unsurpassed. Practically every street in the city is to be illuminated by ornamental lighting standards fed by underground cable. The poles and wires required to serve private consumers are being placed at the rear of the buildings, in the alleys.

Original designs of cast iron lighting standards were prepared and the greater part of these were obtained from a local foundry. The total installation will require 1,500 standards and over 60 miles of cable. The cable consists of a single No. 6 B. & S. guage copper wire with paper insulation and a lead cover protected by steel tape armor and jute.

Two types of standards are being used. In the downtown section the type chosen consists of a cast iron fluted column supporting a pole top fixture. The fixture encloses a 750 candle-power nitrogen-filled series lamp in a large diffusing globe. The mounting height of the lamp is 14 ft. 6 in. above the pavement and the equipment has produced an exceptionally effective "White Way."

For the remainder of the city a standard of similar general design but smaller dimensions is used. The fixture will contain a 150 candle-power nitrogen-filled series lamp. The standards are placed on both sides of the street and staggered, and are further arranged so that opposite sides of the same street are on different circuits.

Up to the present time 1,300 concrete bases have been set, and 1,000 standards erected, while approximately 40 miles of cable has been laid. All this work has been performed by local day labor under the supervision of the Commission. The costs, which are to be borne by the property owners on the Local Improvement Plan, have been exceedingly low.

ELECTRIC RAILWAY PROJECTS

General

The work carried on by the Electric Railway Department during the past year may be summarized as follows:—

1. Advice to municipalities as to possibilities, routes, etc., of proposed lines.
2. Reconnaissance and rough reports on various lines.
3. Preliminary surveys of desired routes.
4. Preparation of plans and profiles of preliminary surveys and projection and taking out of quantities on lines along such surveys.
5. Estimates of cost of construction and equipment of proposed lines.
6. Collection of traffic data from the various districts showing the amount and distribution of business both inbound and outbound.
7. Estimates of the annual revenue and expenses that might be expected from the construction and operation of various lines.
8. Reports and advice to municipal committees and representatives as to the most profitable routes of those surveyed through various districts.
9. Assistance to municipalities in the preparing of by-laws and presentation of such to the ratepayers for ratification.
10. Preparation of standard estimating costs of each portion of the work entering into the construction of the complete line.
11. Preparation of standard rules and specifications with drawings covering the forms of construction proposed for these lines.
12. Preparation of specifications and plans covering standard materials such as rails, concrete pipe, etc., required for roadbed construction.
13. Selection of a system of electrification.
14. Compiling statistics of traffic, revenue and expenses of existing railways for the purpose of comparison with proposed lines.
15. Preparation of specifications for electrical equipment for substations, cars and locomotives.

To carry on the above work in all its details required a very careful and complete study of plans, costs and operating statistics of existing railways now in operation in Canada, United States and Europe.

Projects

To date, resolutions have been received from 138 townships, 38 villages, 42 towns, 11 cities, 4 police villages, and 7 miscellaneous committees, such as Boards of Trade, etc., asking for surveys, reports and estimates on proposed lines. Two survey parties have been at work for almost the entire year making preliminary surveys of some 1,200 miles of line. The information so obtained has been plotted and used for the purpose of preparing estimates on the cost of roadbed construction. In making the surveys topography was taken for approximately 400 ft. on each side of the traverse line. When this information was plotted the proposed lines were then projected and quantities figured along such lines.

Traffic men have been sent into the various districts for the purpose of collecting information showing the amount of freight and passenger business that is obtained by the present railways in the district, and whose duties are to be estimated on the business that may be done by the proposed lines. Full information is now being taken by these men showing not only the amount of business, but the

revenue that is derived therefrom and the destination or shipping point of freight business; thus the information may be used for other lines that may be proposed in the future without requiring the traffic men to return to the district.

The most important work done during the year was in the Toronto-North-Eastern District. Meetings with the representatives of the municipalities in this district were attended during the year, and it was decided by the representatives during the summer that the councils of the municipalities should pass by-laws to cover the construction, equipment and operation of the line, and that these by-laws should then be placed before the people on October 19th for ratification. Agreements between the Commission and the municipalities covering construction and operation of the line were prepared and a number of meetings were held in all centres throughout the district, for the purpose of explaining the proposition to the ratepayers. Representatives of the Commission were present at practically all of these meetings to assist in giving this information, and the result of the voting on October 19th showed that the municipalities as a whole were very anxious for the construction of the line along the route recommended by the Commission. Eleven out of the thirteen municipalities that voted on this date passed their by-laws by very substantial majorities.

TESTING AND RESEARCH LABORATORIES

During the past year the work of the laboratories has increased greatly both in volume and in variety, due to the rapid expansion of the Commission.

The installation of the equipment originally planned has been practically completed, and in addition, a complete equipment for conducting physical tests on cement has been installed, which is described in greater detail below.

As mentioned in previous reports, the organization includes the High-Tension and General Testing Laboratory, Lamp Testing Laboratory, Meter and Standards Laboratory, and Illuminating Engineering Laboratory. There is also a fully equipped dark room in connection with these laboratories, in which photographic work is done for the various departments of the Commission. This is also of great value to the laboratories in making possible photographic records of tests of special interest.

The laboratories have been placed on a self-supporting basis by the adoption of a scale of charges slightly in advance of cost, which applies to other departments of the Commission, and to municipalities and others for whom tests are made.

The outline given below of the equipment and of the nature of the work undertaken by the various sections, will indicate in some measure the variety of tests which the laboratories are prepared to handle:—

Electrical Equipment of the Laboratories

The electrical equipment necessary for widely differing classes of work done in the departments of the laboratories has been selected and installed with a view to promoting the greatest flexibility of use, thus enabling one piece of apparatus to be used for as many different classes of work as may be consistent with the accuracy required.

The power used in the building is fed directly from the Strachan Avenue Substation at 13,200 volts through an underground cable to transformers located in a special room in the basement of the laboratory building. The transformer equipment comprises three 50-kv-a. units so connected that three-phase power may be obtained from them at 220 or 110 volts. This power is carried through a set of interlocking oil circuit breakers to the laboratory switchboard, situated in another part of the basement. The switchboard, of special design, consists of seven panels, each for its own separate and distinct class of work, and includes, besides the necessary switches and circuit breakers for distributing power to all parts of the building, an arrangement whereby testing circuits in different departments of the laboratories may be interconnected, thus avoiding a large quantity of temporary wiring when special tests are conducted. This board also carries meters for indicating and recording all incoming power; contact making voltmeter and relays for the voltage regulator; and the terminal jacks of the storage batteries and other direct current circuits.

The battery charging set, and a 50-kv-a., 60-cycle motor generator set, for use with the high voltage testing transformer are installed in the same room with the switchboard. The storage battery layout, located in a room near the transformer room, is made up of two separate sets, 70 cells each, of 80-ampere-hour "Tudor" cells. Provision having been made on the front of the main switchboard for any desired interconnection between these batteries, a wide assortment of direct current is available for all work where a source of steady potential is required.

A detailed description of the special pieces of apparatus will be found under the heads of the separate departments in which they are used.

High-Tension and General Testing Laboratory

The high-tension section of the laboratories is at present equipped with transformers and connecting equipment suitable for making high potential tests at any voltage from 1,000 to 400,000 volts 60-cycles, and up to 225,000 volts at 25-cycles. Sixty-cycle power for this purpose is supplied by the 50-kv-a., three-phase alternator mentioned above. It is wound to give a normal voltage of 1,100 or 2,200, and is driven by a 75-h.p., three-phase, 220-volt induction motor. Excitation for the alternator is provided by the battery charging set. The high-tension testing set consists of two transformers wound to give 75,000 volts and 300,000 volts respectively.

This high-tension set is used for making dielectric tests on transformers, transmission line materials, series lighting fixtures, or any other high voltage electrical apparatus. Considerable time and much study is devoted to high-tension transmission line troubles, especially of line insulators, both pin and suspension types, and much valuable information has been obtained. In several instances this has led to changes in design of insulators by the manufacturers, and, in a word, has had a salutory effect upon the manufacturers in causing them to exercise greater care in factory processes, in order to get a more perfect product.

Under this department, tests have been performed on several types of 13,200-volt power fuses under severe operating conditions, the tests being made with large generating and transforming capacity and 100 miles of 110,000-volt and 25 miles of 13,200-volt line in the test circuit. The ability of the fuses to open a "dead short" across the 13,200-volt bus was investigated, and observations taken of the attendant phenomena by means of the oscillograph and the camera. An oscillographic record of one of these tests is shown below.

A certain percentage of the small transformers purchased by the Commission are tested before being put into service, and this has led to frequent eliminations in the laboratory of transformers which would have broken down in service, and caused delay, dissatisfaction, and expense to the customer.

Mechanical as well as electrical tests are made on insulators, apparatus being at hand capable of subjecting them to a mechanical tension of 10,000 pounds, and, if desired, an electrical stress of 100,000 volts or more. This mechanical apparatus is available for any tension tests up to 10,000 pounds.

Many miscellaneous tests are carried out here for which special apparatus is designed in the Laboratory Workshop. Also, many tests, while not determining absolute values, do nevertheless determine comparative suitability of material for the work for which it is to be used. Among miscellaneous tests performed recently may be mentioned the following:—

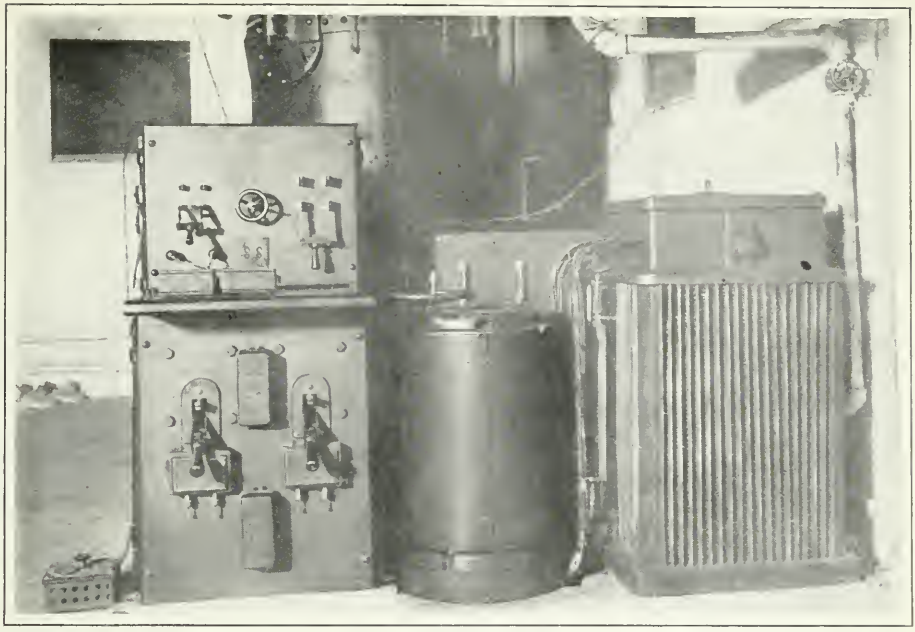
Determination of the relative expansion of porcelain and various metals and alloys, glass and cement.

Determination of the relative heat conductivity of various patent car floorings and sidings as compared with wood and dead air space as a heat insulator.

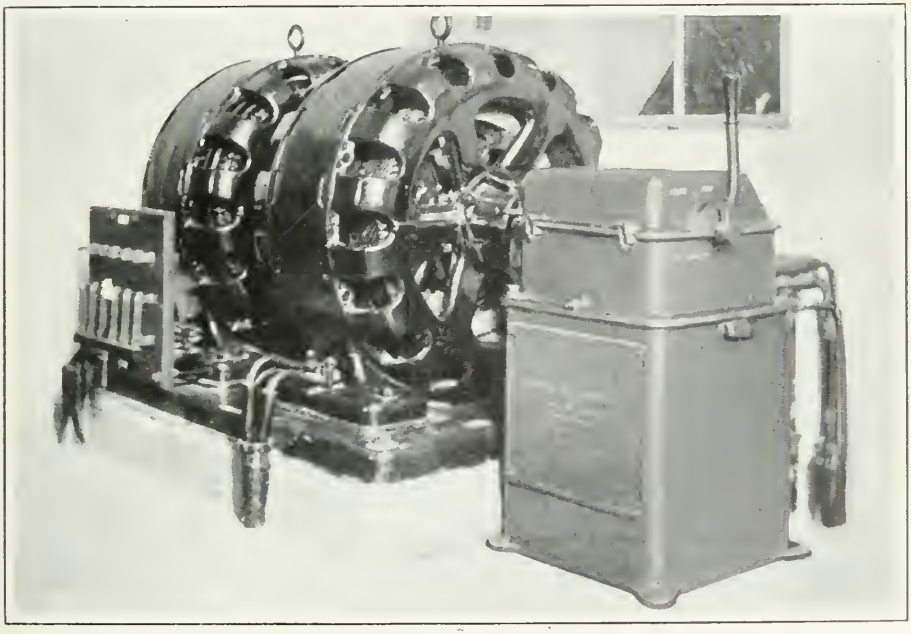
Tests on hot galvanizing and sherardizing as a rust proof covering for iron, and tests to determine whether or not purchases of galvanized hardware will pass the standard four-dip test.

Connected with this section is the Cement Testing Laboratory, in which four to five samples per day of cement may be tested. Samples are tested according to the specifications of the Canadian Society of Civil Engineers, for the following:—

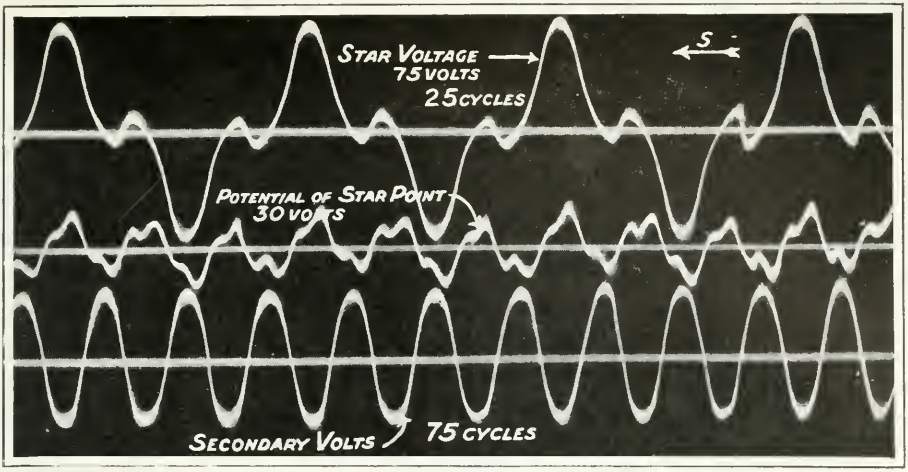
1. Fineness.
2. Time of Setting.
3. Tensile Strength.
4. Soundness and Constancy of Volume.



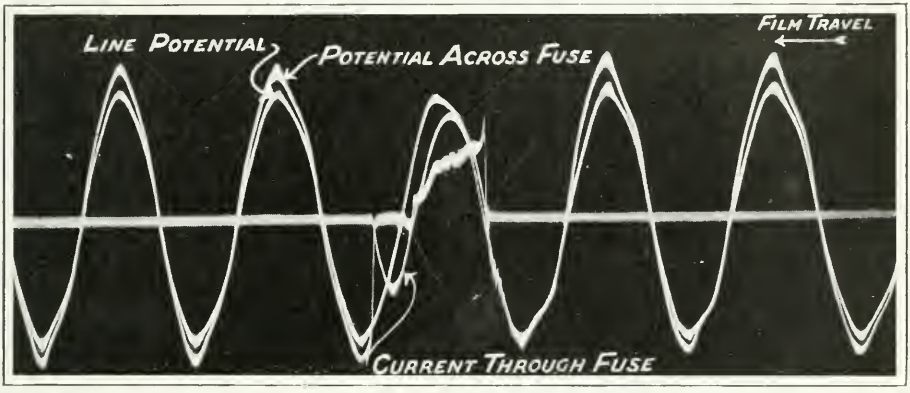
Control Board for High-Tension Testing Transformers—High-Tension Laboratory



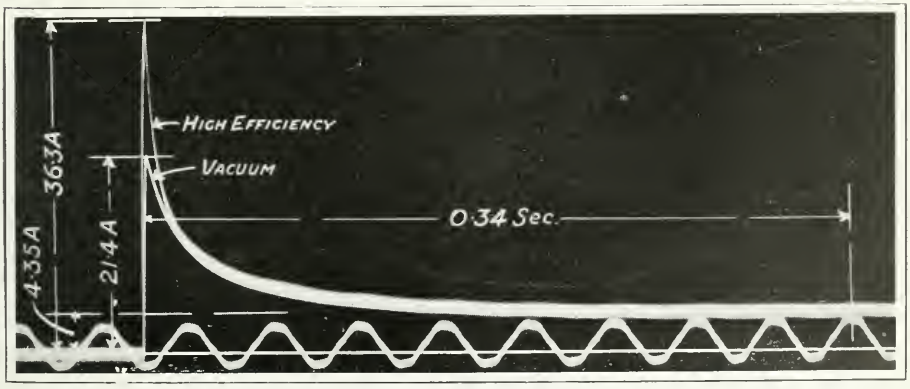
50 Kv-a., 60 Cycle Motor Generator Set—High-Tension Laboratory



Oscillogram Showing Conditions in 75-Cycle Frequency Changing Transformer



Oscillogram of Short-Circuit Test on 13,200-Volt Fuse



Oscillogram Showing Comparative "Overshoot" of Nitrogen and Vacuum Lamps

Any sample not passing test, or which gives a doubtful test, is at once given a check test, reserve cement for such contingencies being labelled and stored at the time the cement is received at the Laboratory. The reserve samples are preserved until the cement has been accepted by the Commission.

Meter and Standards Laboratory

By the installation of improved apparatus, the scope of the work of the meter department has been greatly increased from previous years, and a large amount of electrical testing extremely varied in its nature has been accomplished.

The equipment has been chosen with a view to the widely varied classes of testing which are likely to come within the sphere of this department. Where extremely close voltage regulation is not required, 25-cycle power is obtained from the supply mains of the building; while 60-cycle power of the same class can be taken from the 50-kw. motor generator set installed for use with the high-tension testing transformer. For precision work, a specially designed motor generator set has been installed. It consists of a direct-current variable speed motor driving a small alternator. From this alternator may be obtained two or three-phase potentials at any voltage up to 360, while by changing the speed of the motor, any frequency from 22 to 66 cycles can be maintained. Direct-current is taken from the storage batteries or from the charging generator.

A number of new meters have been added to the stock of portable measuring instruments. Among these may be mentioned:—A "Frahm" type, vibrating reed frequency meter; several of the newest Weston, volt, ampere, and watt meters; and a Nalder power-factor indicator for unbalanced three-phase loads. An attachment has been purchased for the oscillograph, which enables records five feet long to be taken, whereas formerly the limit of length was twelve inches.

Where electrical power is measured for sale, the necessity arises for accurate standards of measurement, against which may be checked the sub-standards used in calibration of station graphics and other power meters. The official standards of the Dominion of Canada are of course in the custody of the Government, in the laboratories at Ottawa. With a view to leaving absolutely no room for conjecture as to the accuracy of measurements, a careful comparison has been made of the Commission's standard instruments with those of Ottawa, and also indirectly with the United States standards at Washington.

The "Hydro-Electric Meter Code," the compilation of which was referred to in last year's report, has been adopted as a basis of comparison of watt-hour meters, and a number of different types were submitted for comparison of their mechanical properties. A very close check having thus been obtained on the actual relative values of widely differing makes, a basis was established whereon to place large contracts for the instruments as required by the municipalities. The following meters have been submitted to these tests:—

Aron	Packard
Canadian General	Siemens
Chamberlain and Hookham	Sangamo
Ferranti	Westinghouse

The peculiar characteristics of the demands of rural customers, which now form a rapidly increasing percentage of the Commission's power load, has called for special types of metering apparatus to replace or to be used in conjunction with the ordinary watt-hour meter. Experiments have been conducted on various metering principles which might answer these requirements, and a number of types of

excess and maximum demand meters are now being given actual service tests to further determine their characteristics.

A large number of watt-hour meters purchased for the municipalities have passed through the meter testing department before being sent out. The investigation of these enables the Commission to keep a check on the product. Such meters as are to be used in the district immediately surrounding Toronto are here inspected and sealed by the Dominion Government inspector. On occasions, municipalities on the 60-cycle portions of the System have been enabled to secure at very reasonable rates, meters and such apparatus formerly used by customers, who, tying in with the Niagara System, must replace their 60-cycle equipment with 25-cycle. The Stores Department acting as a clearing house for such apparatus, the Laboratory is enabled to inspect, and if necessary, adjust it before it passes on to the new owner.

With a view to determining the best value obtainable in heating utensils, very detailed tests were performed by this department on cooking ranges, toasters, sad irons, and other heating appliances. These tests included prolonged runs under actual service conditions, as well as careful investigation of the operation when subjected to the abuses which are likely to fall to the lot of such apparatus in domestic use. In the case of the cooking stoves, the tests included actual cooking of meals, records being kept of power consumed, time of cooking, quality of product, cost per person per meal, etc.

The following makes of utensils were submitted to test:—

Cooking Ranges

Copeman
Hot point
General Electric
Hughes
Ideal
Parke (Automatic)

Toasters

American
Automatic
Cadillac
"Cory"
Hot point
General Electric
Ideal
National
Radiant
Simplex
Universal
Westinghouse

Flat Irons

American
Chicago Flexible Shaft Co.
"Fansteel"
General Electric
Hotpoint
Ideal
National
Phelps
Progressive
Radiant
Simplex
Universal
Vulcan
Westinghouse

In the past year, the oscillograph has often proved its usefulness in investigating phenomena which would have otherwise been impossible of examination. The wave forms of currents and potentials obtained from the high-tension testing transformers were made the subject of a series of oscillograms, the object being to

Globe Showing Poor Diffusion Characteristics—Illuminating Engineering Laboratory

Globe Showing Good Diffusion Characteristics—Illuminating Engineering Laboratory

Experimental Form of Asymmetrical Reflector—Illuminating Engineering Laboratory

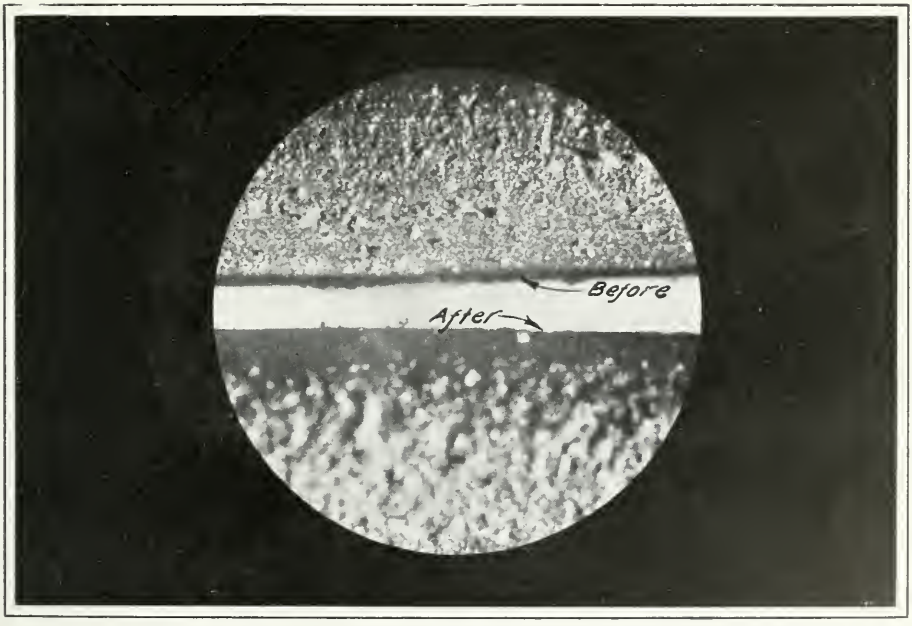


Photo-Micrograph of Sample of Heater Wire Before and After 100 Hours Service
(46 Diameters Magnification)

determine the behavior of the insulators tested, under the attack of a potential having a steep wave front as compared with its action when an approximately sinusoidal voltage is applied. This instrument has also proved invaluable in special investigations, among which may be mentioned—A series of tests to determine to what extent the triple frequency currents present with certain polyphase transformer connections, might be utilized for lighting and other purposes where a 25-cycle voltage is not desirable; the action of high potential fuses, and starting currents of incandescent lamps.

In connection with the installation of improved equipment on the Commission's telephone system, some interesting wave pictures were taken to show the efficiency of a repeating coil in transforming the currents which represent the sound vibrations of the human voice.

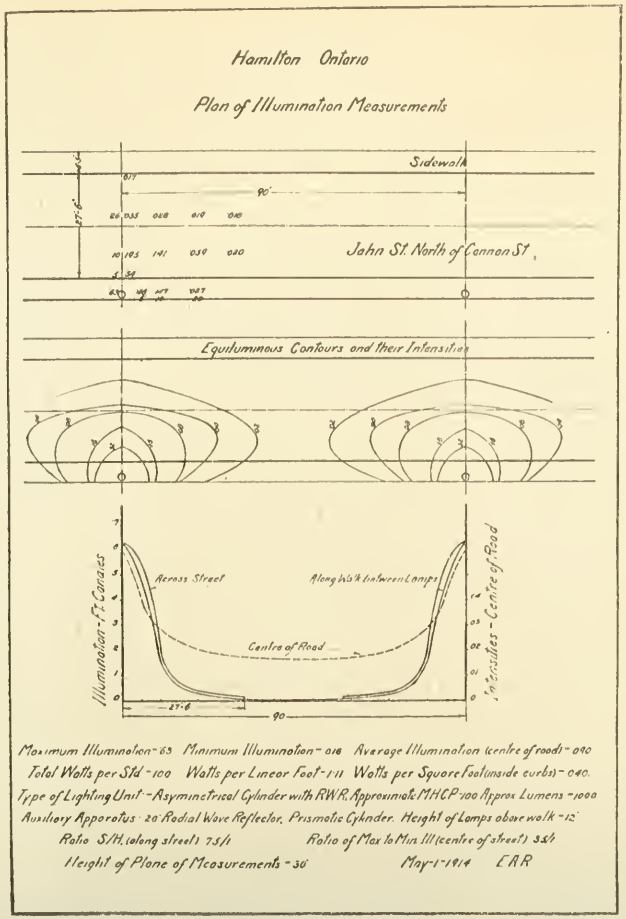
There has also been done under the direction of this department, much work in the repair, adjustment, design, and re-design of apparatus used by the Operating, Municipal, and Demonstration Departments. Under this head may be mentioned—portable load banks for meter inspectors and stationary load banks for municipalities, relay switches for remote control of street lights in scattered districts and a number of special attachments for portable and station meters.

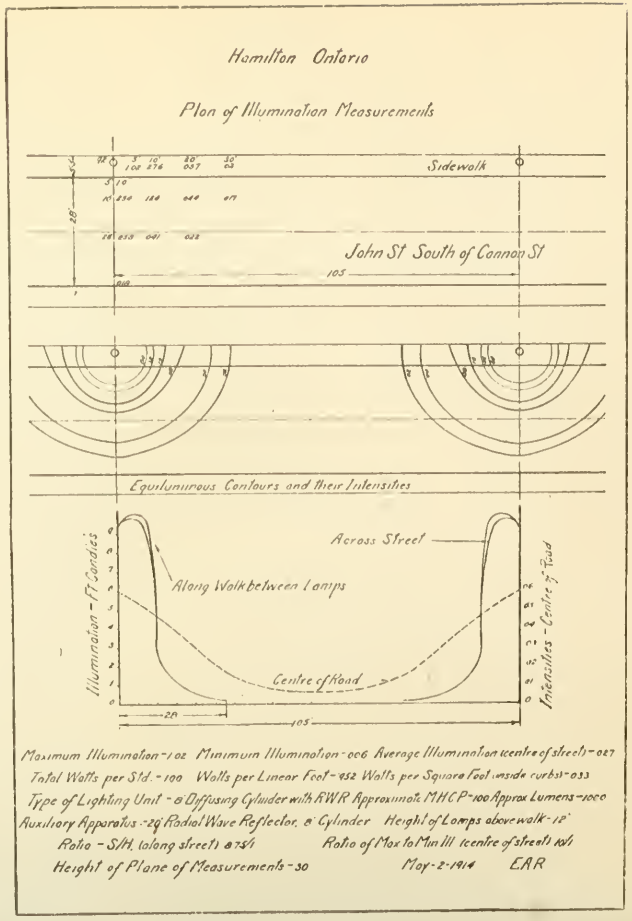
Illuminating Engineering Laboratory

Notable advancement has been made in recent years in this branch of engineering, with the result that universal interest has been aroused in lighting methods. Demands for better lighting have been most urgent where it is used as an advertising medium. Merchants have contributed generously to support this movement, and the results have been so gratifying that competition for the best illuminated streets has become so keen as to require considerable attention to be given to this comparatively new art. With the activity shown by merchants, the idea soon spread among the public, which resulted in better methods of street lighting being adopted. Speed of traffic has for safety demanded this course to be taken. Residential lighting is important, but does not receive the attention that other classes do; nor is it subject to the influences of selection and installation that are prevalent in larger projects.

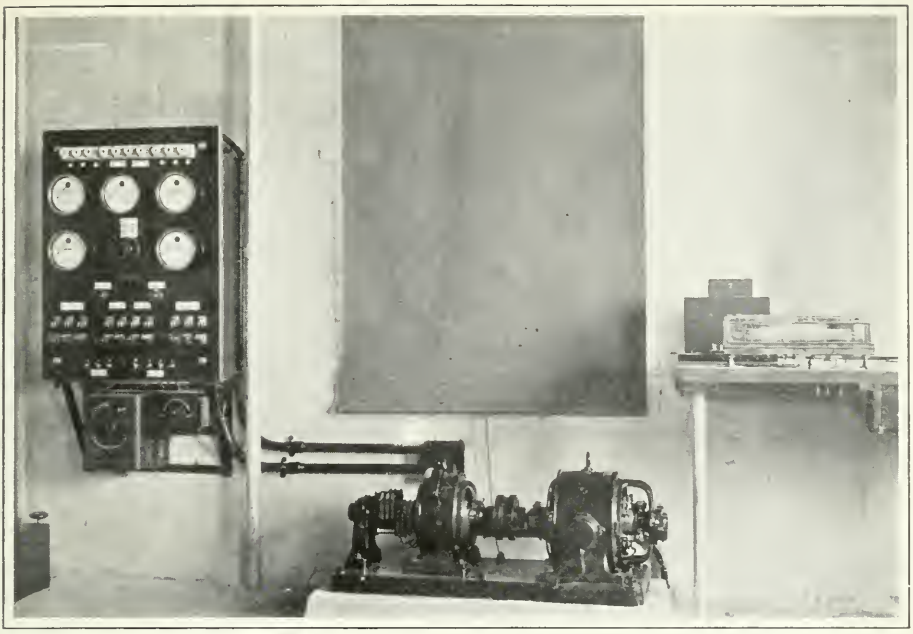
Street lighting with its varied problems has occupied the major portion of the attention of this department. Investigations with a portable photometer have enabled us to obtain data, the arrangement of which clearly indicates the improvements that could be made, and portrays the existing defects. Illumination diagrams have been made; exercise of considerable care in arranging the important data has been undertaken to facilitate comparison of similar systems. By judicious use of these diagrams, new installations may be erected to give better satisfaction than could otherwise be obtained. The type of installation depends primarily upon two factors; the density of traffic, and the economy necessitated by the character of the district.

Owing to these factors, several systems are employed. A large majority of towns use the series system of distribution, and use sixty to one hundred-watt lamps, equipped with radial wave reflectors. Most of the fixtures are mounted at a fair height, but the spacing depends on that of the power or telephone poles which preceded their erection. Five lamp clusters were very prominent a few years ago, due principally to their artistic appearance, and the difficulty of obtaining incandescent lamps of high intensities at satisfactory rates for the purpose. This type of fixture gave way to the magnetite and flame arcs, which were used to secure high intensities; but the advent of the nitrogen-filled tungsten lamp with its

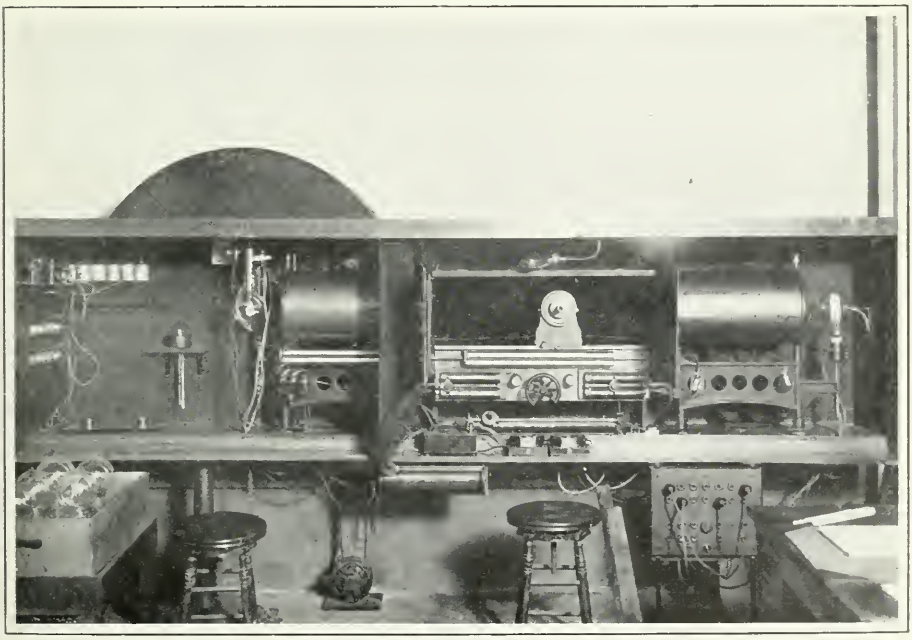

Hamilton Ontario
Plan of Illumination Measurements
Sidewalk
90'
John St. North of Cannon St.
Equiluminous Contours and their Intensities
Illumination - Ft. Candles
Across Street
Along Walk between Lamps
Centre of Road
Intensities - Centre of Road
27·6
90
Maximum Illumination - 63 Minimum Illumination - 018 Average Illumination (centre of road) - 090
Total Watts per Std - 100 Watts per Linear Foot - 1·11 Watts per Square Foot inside curbs) - 040.
Type of Lighting Unit - Asymmetrical Cylinder with RWR Approximate MHCP - 100 Approx Lumens - 1000
Auxiliary Apparatus - 20' Radial Wave Reflector, Prismatic Cylinder. Height of Lamps above walk - 12'
Ratio S/H (along street) 7.5/1 Ratio of Max to Min Ill (centre of street) 3.5/1
Height of Plane of Measurements - 30' May-1-1914 EAR


Hamilton Ontario
Plan of Illumination Measurements
Sidewalk
John St South of Cannon St
105
Equiluminous Contours and their Intensities
Illumination - Ft. Candles
Across Street
Along Walk between Lamps
Centre of Road
Intensities - Centre of Road
20
105
Maximum Illumination - 1·02 Minimum Illumination - 006 Average Illumination (centre of street) - 027
Total Watts per Std. - 100 Watts per Linear Foot - 952 Watts per Square Foot inside curbs) - 033
Type of Lighting Unit - 6 Diffusing Cylinder with RWR Approximate MHCP - 100 Approx Lumens - 1000
Auxiliary Apparatus - 20' Radial Wave Reflector, 8' Cylinder Height of Lamps above walk - 12'
Ratio - S/H (along street) 8.75/1 Ratio of Max to Min Ill (centre of street) 10/1
Height of Plane of Measurements - 30 May-2-1914 EAR

Comparative Illumination Diagrams Showing Effect of Asymmetrical Reflector on Street Illumination (Illuminating Engineering Laboratory)



Constant Potential A.C. Set and Kelvin Balance—Meter and Standards Laboratory



100-Inch Photometer—Lamp Testing Laboratory

numerous advantages, both from the standpoint of operation as well as maintenance, is likely to supplant it. This new lamp is destined to be an important factor in the future development of street lighting.

Out of the vast development now taking place in this field of exterior illumination, arises the need of a suitable line of dependable auxiliary devices, principal among which are reflectors, diffusers, and refractors. The high intrinsic brilliancy of the source requires some efficient reflector, combined with a suitable diffusing medium, and the large flux of light requires that means be provided for its proper distribution. To be assured that the complete unit satisfies the above conditions, photometric analysis should be insisted upon, otherwise the quality of the unit for the purpose for which it was designed is never known, and as a result its effectiveness is likewise a mystery.

A number of the problems suggested above have been thoroughly investigated, and, with the co-operation of municipal authorities and manufacturers, a great deal has been, and will be, accomplished, in obtaining the best results particularly in the branch of street lighting.

Assistance has been rendered several municipalities in securing data, the interpretation of which served to improve existing or tentative systems. New fixtures submitted as samples have been tested to determine their usefulness in the proper distribution of light. Nitrogen-filled tungsten lamps necessitated the design of new fixtures; the requirements and difficulties that would be encountered were presented to manufacturers, with the result that the suggestions hastened the appearance of satisfactory fixtures. The abolition of the five-lamp cluster brought out the problem of how to utilize the existing standard, and increase the height of the proposed unit. A design was submitted and the suggestions adopted. Many similar suggestions of less importance were given out, but the mention of these few serve to convey the idea of the service rendered, and scope of the work along this line.

An extensive series of tests was made on two types of diffusing glassware, to determine the quality with a variation of constituents as well as weight. The results showed a consistent superiority of one make over the other, hence we were able to recommend this class of glassware as satisfactory from numerous viewpoints. Other samples of shades, small glass reflectors, etc., were also photometrically tested.

The necessity of having proper means for investigating all forms of commercial illuminants, with and without their equipment, led to the design of a precision photometer, which will be sufficiently flexible in operation to be used for all classes of work to be performed at the laboratory. With an instrument of this character we will be in a position to carry on extensive photometric tests on illuminants, reflectors, and diffusing media. In addition to this information, problems arising in connection with photometry can be thoroughly investigated, to be later incorporated as methods employed in commercial work.

The general work of this department has been outlined, and a few of the problems investigated have been briefly described. The field open to be investigated is evident from the above suggestions, and with a complete line of apparatus necessary in conducting extensive tests, the work of this department is bound to manifest itself as an increasingly important section of the activities of the Commission.

Lamp Testing Laboratory

The expansion of the Commission is very forcibly indicated by the increase in volume of the work of this section. The number of lamps inspected (760 lots representing approximately 400,000 lamps) is a good criterion on which to judge of the growth in the business of the Commission among the various municipalities.

As explained in previous reports, a very close check is kept on the product supplied by the manufacturers, and the standard specifications are rigidly enforced. This ensures that only lamps of assured excellence are furnished to the municipalities.

The equipment of this laboratory includes—a 100-inch photometer with Bunsen and Lummer Brodhun Screens; a complete life test outfit, including regulating devices to keep current and voltage constant, by which the life performance of series and multiple lamps is investigated; besides other apparatus for conducting more scientific researches. Among the latter may be mentioned—a high power microscope which has furnished valuable information regarding the disintegration of the filaments of lamps during their life, and has also proved of value in connection with tests in other sections of the laboratory.

A complete set of standards is kept, and these are periodically checked against those of the leading standardizing laboratories in America.

A considerable part of the work at present under way consists in satisfying the demand for information regarding the characteristics of gas-filled lamps. Life tests on many of the types at present on the market have been made, and many more are under way. This information has been of value in many instances in protecting a prospective purchaser from an inferior product. No specifications dealing with gas-filled lamps have yet been issued, owing to the apparent impossibility of producing, in the present state of the art, gas-filled lamps of characteristics as uniform as those of the tungsten vacuum lamp.

One of the most important parts of the work of this section consists in examining lamps returned from the various municipalities, which have shown unsatisfactory performance. It is usually possible to determine in this way the cause of failure and thus to avoid misunderstanding between the purchaser and manufacturer.

Considerable research work has also been done in connection with the photometry of gas-filled lamps. This has taken the form of investigations of flicker photometers, and of ray filters and solutions. This part of the work, however, is given importance only in so far as it has a direct practical bearing on the problems encountered.

In short, the increase in the work of this section, and of the laboratories as a whole during the past year, is conclusive proof that the municipalities using Hydro power realize the advantages accruing to them from the possession by the Commission of a clearing-house for practical information.

SECTION V

HYDRAULIC INVESTIGATION AND CONSTRUCTION

MEASUREMENT OF STREAM FLOW

The systematic measurement of stream flow was begun in 1912 and has been carried on continuously up to the present time. While this work has been under way for a comparatively short period the results are extremely valuable in that they constitute the first attempt that has been made to ascertain with accuracy the flow characteristics of the important rivers of the Province. Records of this kind, extending over considerable periods of time, are absolutely indispensable in connection with working up schemes of hydraulic development, flood prevention and river improvement. These records are also exceedingly valuable in connection with the design and construction of bridges, and as a basis of study in connection with the classes of work above specified, they should ultimately be the means of saving the Province from the recurrence of the immense losses which have hitherto been occasioned through flood damage and the improper design of dams and bridges. Work of this kind being essentially of a preventative nature, must of necessity be carried out through a Governmental agency, and in the matter of hydraulic development it is also evident that no private enterprise can afford to wait four or five years to collect sufficient records of stream flow for a proper study of any specific scheme under consideration.

The necessity for obtaining accurate stream flow records may be illustrated by the case of the Maitland River. At the request of the County Council of the County of Huron, the Commission in 1912 reported on the possibility of developing power at the Black Hole on the Maitland River for the purpose of supplying power to the County of Huron. The circumstances were such that it was necessary to make this report at the earliest possible date, and the only dependable records of stream flow available were those taken by the Commission between May, 1911, and May, 1912. On the strength of these records, it was stated that the probable minimum continuous capacity of the site was 800 h.p. The records for the summer of 1912 showed a minimum capacity in excess of 800 h.p., but the records for 1913 showed the minimum capacity of 700 h.p., and for 1914 a minimum capacity of 550 h.p. It was therefore necessary to obtain records extending over a period of four years before it could be proved that the Black Hole site was useless as a source of continuous power. Furthermore, if the construction of the plant had been proceeded with on the basis of the 1911 records, a disastrous failure would have resulted. The same danger exists at the present time on practically every river in the Province.

The scope of the stream measurement work has been gradually extended, until at the present time all the principal rivers in the south-western peninsula of the Province are under observation, as are also the rivers flowing into Georgian Bay and Lake Huron.

Permanent metering stations have also been established on the principal rivers in the Cobalt and Porcupine mining districts and westward along the line of the Transcontinental. The English and Winnipeg Rivers and their tributaries, and the rivers tributary to Rainy Lake, have been under observation for the past year and a considerable amount of valuable data obtained, although the difficulty of

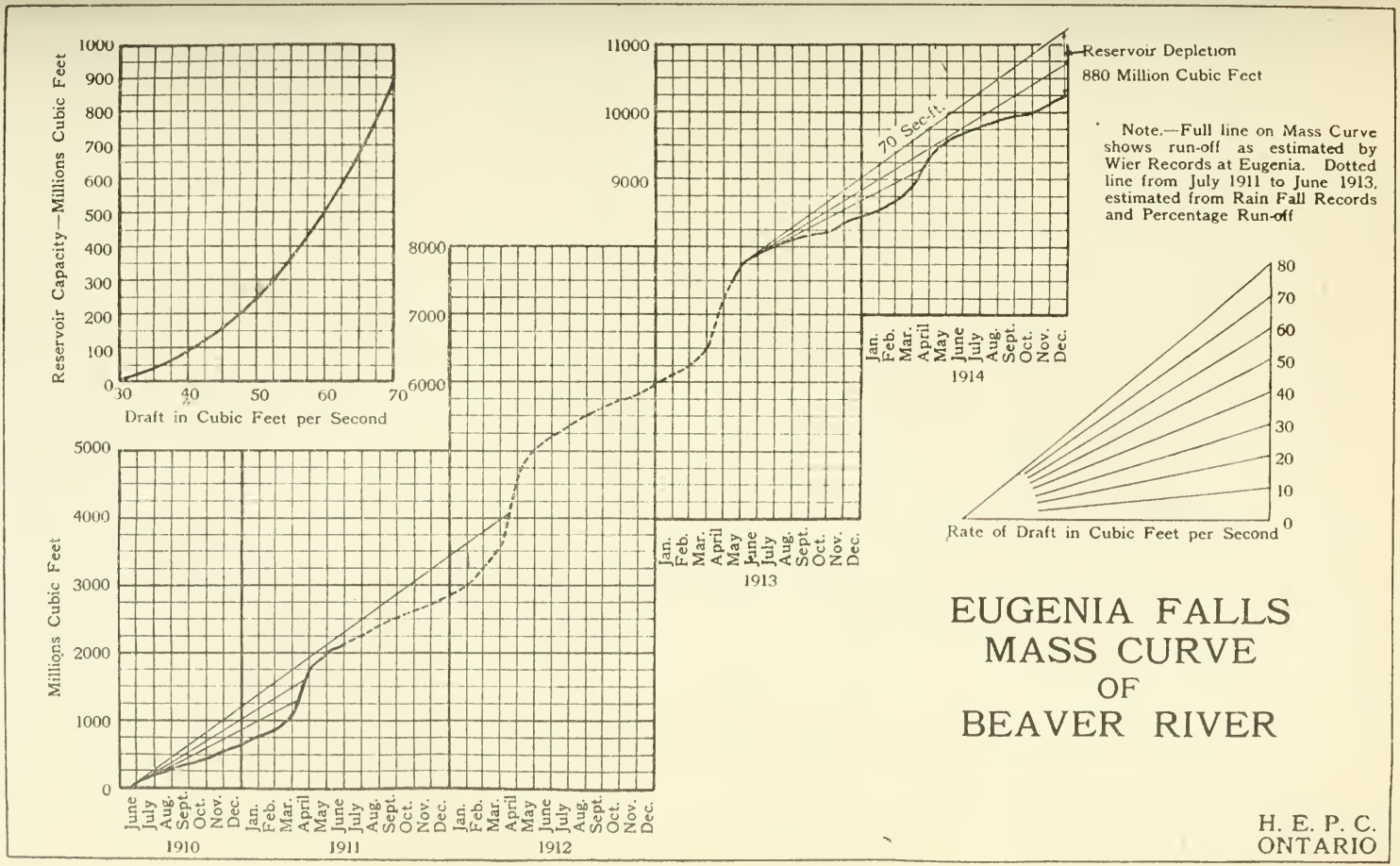
obtaining gauge recorders in the unsettled districts and the long distances to be covered by the field men, has made the collection of data a much slower process in this territory than in the case of the other districts above mentioned.

Enamelled steel staff gauges have been set at all stations where good rating curves have been secured and where it was possible to obtain a gauge reader. Wherever possible, these gauges are read twice a day and the records sent to the Toronto office at the end of each week. At many of the stations it has been found impossible to eliminate the effects of back water, and wherever possible these stations have been abandoned and more favorable ones chosen. While this source of error has by this means been largely eliminated in the case of the stations on the northern rivers, it has been found impossible to altogether eliminate it in the case of several rivers in the south-western peninsula, principally on account of the large number of mill dams located upon the same.

Tabulated results of the stream measurement work up to December 31st, 1914, are appended hereto. All discharge measurements were made with standard meters, and except where otherwise noted are accurate within a limit of five per cent. The rating curves from which the discharge tables were compiled are, in most cases, well defined, but in the case of certain streams, as noted in the tables, some revision of the tabled discharges may be necessary when further data on winter discharge has been obtained and extra points fixed in the middle range of some of the rating curves.

The most important hydrometric studies carried on during the past year were those on the Grand and Beaver Rivers. Work on the Grand River has been laid out in considerable detail and fifteen metering stations located throughout the watershed. Considerable data has been obtained which will aid in fixing the minimum flow of the main river and tributaries, but owing to the unusually light freshet which occurred in the spring of 1914, no data is yet available in connection with extreme high water conditions similar to those which have obtained in former years. Until this data has been obtained as a result of the actual measurement of the higher ranges of flood discharge, the hydrometric investigations on the Grand River cannot be used as a basis for the study of a flood prevention scheme.

The hydrometric study of the Beaver River has been carried on continuously during the past year and a considerable amount of essential information has been obtained bearing upon the economics of the power development at Eugenia Falls, which is now in course of construction. The maximum discharge at Eugenia Falls as determined to date is about 550 cubic feet per second, or about 7 cubic feet per second per square mile of watershed. The minimum measured flow is 20 cubic feet per second, which means a run-off of .27 cubic feet per second per square mile of watershed. Weir discharge records from May, 1910, to June, 1911, and from May, 1913, to date, together with an estimate of the run-off during the intervening period, based on weir and precipitation records, indicate that the average flow from the watershed above Eugenia Falls is about 71 cubic feet per second. Also, an analysis of the appended mass curve covering the same period, indicates that this average flow may be impounded for useful work with a storage capacity of 900 million cubic feet. The precipitation records for the period above mentioned appear to be fairly representative, as the year 1910-11 was dry, the year 1913-14 the driest on record, and the year 1912 was very wet. It would seem, therefore, that the average run-off for the whole period is derived from a fairly representative cycle of maximum and minimum flow conditions.


Reservoir Capacity—Millions Cubic Feet
1000
900
800
700
600
500
400
300
200
100
0
30
40
50
60
70
Draft in Cubic Feet per Second
Millions Cubic Feet
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
70 Sec-ft.
Reservoir Depletion
880 Million Cubic Feet
Note.—Full line on Mass Curve shows run-off as estimated by Wier Records at Eugenia. Dotted line from July 1911 to June 1913, estimated from Rain Fall Records and Percentage Run-off
80
70
60
50
40
30
20
10
0
Rate of Draft in Cubic Feet per Second
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. April May June July Aug. Sept. Oct. Nov. Dec.
1910
1911
1912
1913
1914
EUGENIA FALLS
MASS CURVE
OF
BEAVER RIVER
H. E. P. C.
ONTARIO

POWER AND STORAGE SURVEYS

Grand River

Surveys of possible storage basins on the Grand River were carried on during the winter and most of the summer of 1914. Accurate contour surveys were made of two projected storage locations on the main river, one near Blair and one below Elora, also a location on the Conestogo River and one on the Nith River near Canning. These surveys have been plotted and the information as to storage capacity which it will be possible to obtain from them, together with the stream flow data which is being collected from the fifteen stations in the Grand River watershed, will serve to indicate whether or not the projected flood prevention scheme on the Grand River is physically feasible.

Northern Ontario

During the summer of 1914 a field party was kept continuously employed in making surveys of possible power sites on the rivers flowing north across the line of the Transcontinental Railway into James Bay. Eight power sites in all were surveyed on the Abitibi, Blanche, Groundhog, Frederickhouse, Kapuskasing and Mettagami Rivers. These surveys, together with the stream flow measurements taken in that territory, will be of great assistance in working out schemes to supply the rapidly growing power market, and in supplying information which may lead to the establishment of industrial enterprises.

Cobden

In accordance with a resolution forwarded by the Council of the Village of Cobden, a survey was made during December, 1914, of a power site in the vicinity of the village with a view to ascertaining whether or not it could be economically utilized as a source of power for the municipal and industrial requirements of the village. A report based on the results of this survey is now in course of preparation.

Saugeen River

A survey is now being made near the mouth of the Saugeen River with a view to ascertaining whether sufficient head can be economically created to justify the development of power at this point as an adjunct to the water power now being developed by the Commission at Eugenia Falls. The high head and large storage capacity at Eugenia Falls afford unusually favorable facilities for peak load operation, and if it can be shown that the lower stages of flow on the Saugeen River can be developed within reasonable limits of cost, the two plants can be operated together in such a way as to very largely increase their effective capacity.

Eugenia Falls

Before actual construction work was proceeded with in connection with the Eugenia Falls development, it was necessary to make detailed topographical surveys of the reservoir basin, the sites for dams, and various possible locations for the canal, head works, pipe lines and power house. The results of the survey of the reservoir site are summarized in the table below:

Eugenia Storage Basin—Summary of Capacities

Contour	Volume between Contours	Total Volume	Area in Acres
610			
	750,000 cu. ft.	750,000 cu. ft.	
615			6.9 acres
	3,210,000 cu. ft.	3,960,000 cu. ft.	
620			22.9 "
	8,032,500 cu. ft.	11,992,500 cu. ft.	
625			51.1 "
	15,660,000 cu. ft.	27,652,500 cu. ft.	
630			92.8 "
	41,612,500 cu. ft.	69,265,000 cu. ft.	
635			291.0 "
	161,600,000 cu. ft.	230,765,000 cu. ft.	
640			1,194.0 "
	284,250,000 cu. ft.	515,015,000 cu. ft.	
645			1,420.0 "
	336,875,000 cu. ft.	851,890,000 cu. ft.	
650			1,675.0 "

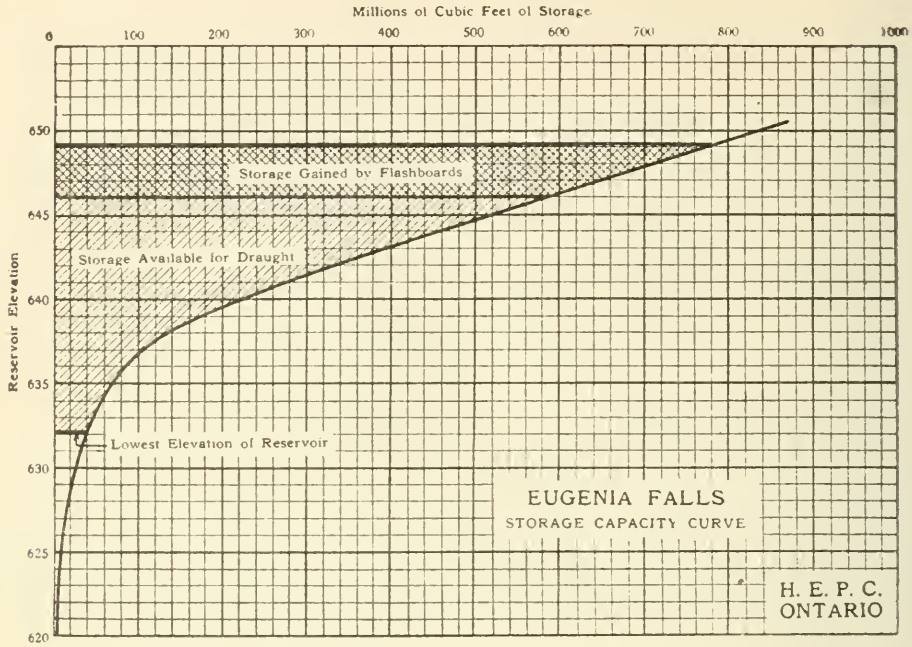
The appended Storage Capacity Curve shows the impounding capacity of the main reservoir for different contour elevations. As indicated on this curve, the gross capacity with 3 feet of flash boards is about 780 million cubic feet, of which 190 million cubic feet is secured by the use of the flash boards. About 40 million cubic feet of this total capacity is not effective, as it is below the minimum limit of reservoir draft.

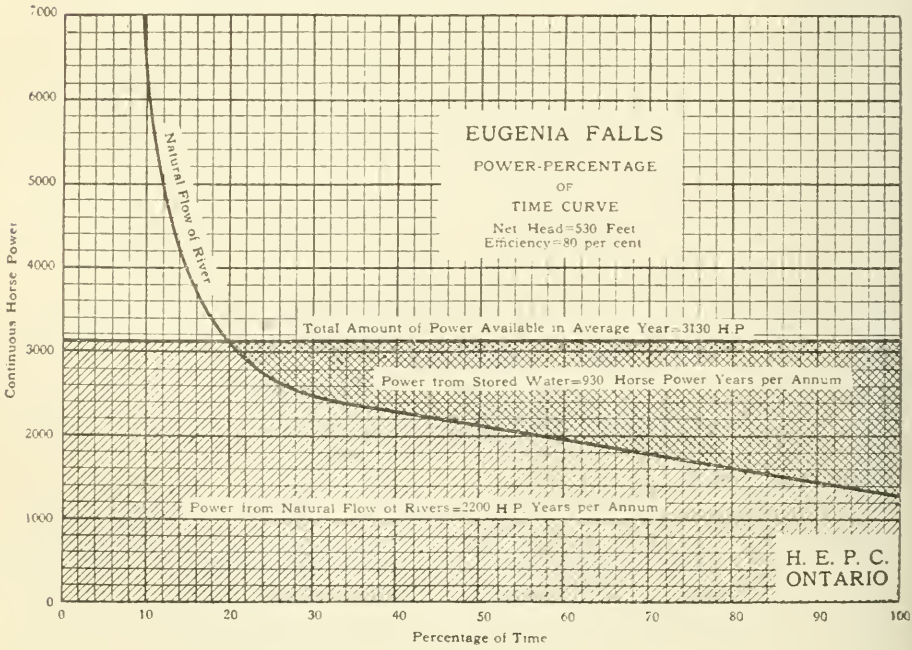
The above volume of storage capacity is obtainable at the head works of the plant as indicated in the appended illustration showing the general layout of the development.

To show clearly the benefit derived from the creation of this storage, the appended Power-Percentage of Time Curve has been plotted. The curve indicates that the minimum continuous capacity of the Eugenia Falls site is about 1,200 h.p., while under the conditions existing as a result of the present scheme of development, the continuous capacity available will be about 3,130 h.p., a capacity which, under natural conditions, would only be available for 73 days in each year. This curve shows that an additional 50 per cent. of power is derived from the impounded water, while the continuous capacity of the stream is increased to nearly three times its natural minimum capacity.

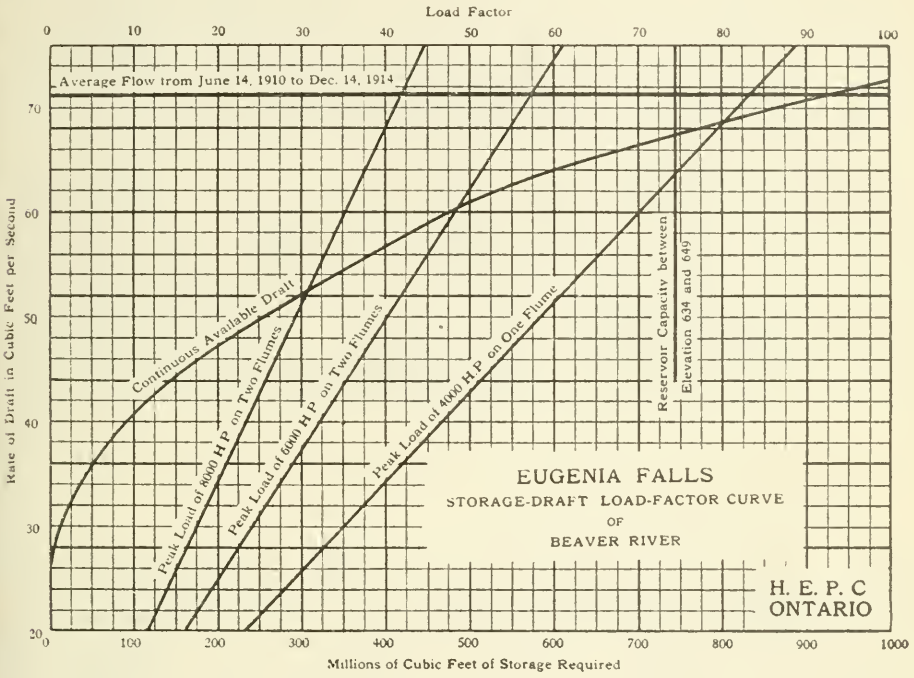
The appended Storage-Power Curve indicates that with a reasonable deduction for evaporation and seepage, a commercial load of 6,000 e.h.p. can be carried with an annual load factor of 53 per cent.. or a commercial load of 8,000 e.h.p., with an annual load factor of 38 per cent. It also indicates that sufficient capacity has been provided in the present storage reservoir to equalize the flow of the river for all ordinary years.

When the full capacity of the plant has been reached, operating conditions may indicate the desirability of providing additional storage as insurance against the possibility of three abnormally dry years coming in succession. In such event the additional storage necessary can be obtained a few miles up the river near the Village of Feversham, where 300 million cubic feet of storage can be secured at reasonable expense. The creation of this additional storage would provide sufficient protection against any scarcity of water arising from an abnormally protracted period of light precipitation. Whether it will ever be necessary or desir-


Millions of Cubic Feet of Storage
0
100
200
300
400
500
600
700
800
900
1000
650
645
640
635
630
625
620
Reservoir Elevation
Storage Gained by Flashboards
Storage Available for Draught
Lowest Elevation of Reservoir
EUGENIA FALLS
STORAGE CAPACITY CURVE
H. E. P. C.
ONTARIO


7000
6000
5000
4000
3000
2000
1000
0
Continuous Horse Power
Natural Flow of River
EUGENIA FALLS
POWER-PERCENTAGE
OF
TIME CURVE
Net Head=530 Feet
Efficiency=80 per cent
Total Amount of Power Available in Average Year=3130 H.P.
Power from Stored Water=930 Horse Power Years per Annum
Power from Natural Flow of Rivers=2200 H.P. Years per Annum
H. E. P. C.
ONTARIO
0
10
20
30
40
50
60
70
80
90
100
Percentage of Time

able to provide storage at Feversham cannot now be stated with certainty, the more so by reason of the fact that the Eugenia plant may ultimately be operated in parallel with developments on other rivers in the district. On this account, it is more than likely that no condition will arise necessitating additional storage at Eugenia.



POWER CONSTRUCTION

Wasdell's Falls

In the Annual Report for 1913 the conditions which led to the inauguration of the Commission's policy of hydraulic development were discussed and the preliminary operations in connection with the construction of the Wasdell's Falls plant on the Severn River were also fully covered. This plant was finally completed in September, 1914, and was formally opened on the 5th of October. Since that time it has been operating continuously, and supplying power to various municipalities on the east shore of Lake Simcoe as far south as Cannington.

The Wasdell's Falls installation is essentially of the low head type, and is the direct opposite in every detail of the type of plant now being installed at Eugenia Falls. The illustrations published in the 1913 report, and those shown here, indicate the structural details and general appearance of the finished plant. The whole of the power-house substructure, including inlet piers, bulk-heads, wheel-chambers and draft-tubes, is of mass concrete construction. The superstructure consists of a reinforced concrete frame work and roof with reinforced plastered walls. All outside walls consist of two thicknesses of plaster supported on "Hyrib" reinforcement with an intervening 4in. air space. The inner walls consist of a single thickness of similar construction. The crane girders are also of reinforced concrete, as will be seen in the accompanying illustration of the power-house interior.

The hydraulic equipment consists of two main turbines and an exciter turbine installed by the Boving Co. of Lindsay, Ont. The main turbines are of the vertical double-runner, open-flume type, operating at 90 r.p.m., and have a guaranteed capacity of 600 h.p. and 85 per cent. efficiency at three-quarter gate under a normal head of 12 ft. The exciter turbine is of the single runner, vertical open-flume type, operating at 190 r.p.m. and having a full gate capacity of 55 h.p.

The main turbines are direct connected through flexible couplings to 400-kv-a., 60-cycle, three-phase, 2,200-volt generators installed by the Swedish General Electric Co., and the exciter turbine is similarly direct connected to a 20-k.w., 125-volt, direct-current exciter generator supplied and installed by the same company.

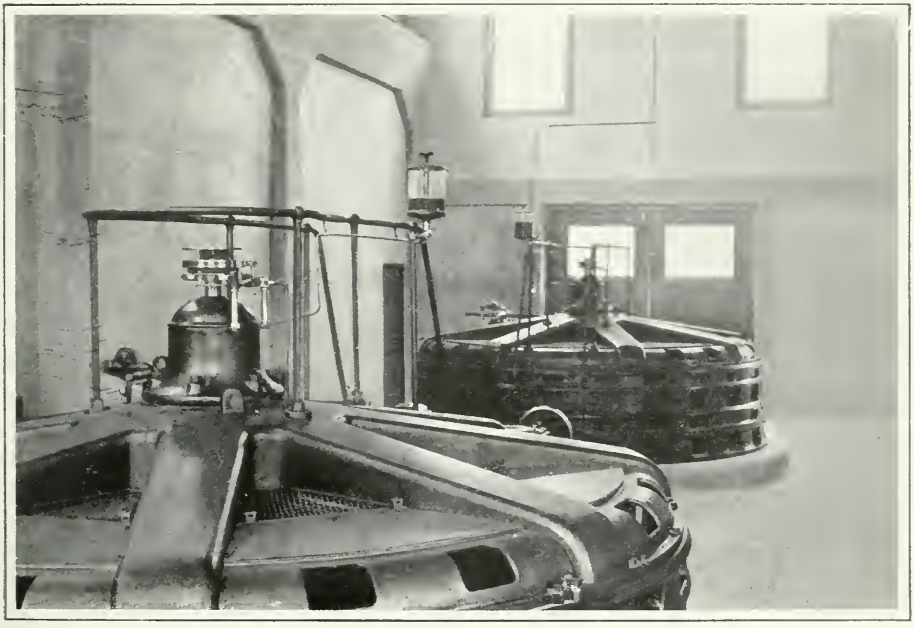
Eugenia Falls

The general layout of the Eugenia Falls power development is clearly shown in the accompanying illustrations, and consists essentially of a storage basin about 1,650 acres in area created by two dams. No. 1 Dam, located in the main channel of the stream, is of reinforced concrete construction, and No. 2 Dam, which closes a low contour in the side of the storage basin, is of earth fill construction with a clay puddle core and rip-rapped faces. The canal leading from the main storage basin is designed to carry the maximum volume of water required for a peak capacity of 8,000 h.p. at minimum draft level. The gate house consists of reinforced concrete wing walls with mass concrete inlet piers having reinforced concrete curtain walls between them. In each of the two inlet openings is placed a 66-in. butterfly valve provided with a combined motor operated and hand operated mechanism. The water leaves the gate house through two 46-in. wood stave pipes 3,350 ft. long operating under a maximum head of about 100 ft. The wood stave pipes are connected at the head block to two 52-in. riveted steel penstocks 1,557 ft. long operating under an average static head of 530 ft. A

Wasdell's Falls—Showing Dam and Power-House under Construction, with "Hyrib" Wall Reinforcement in Place

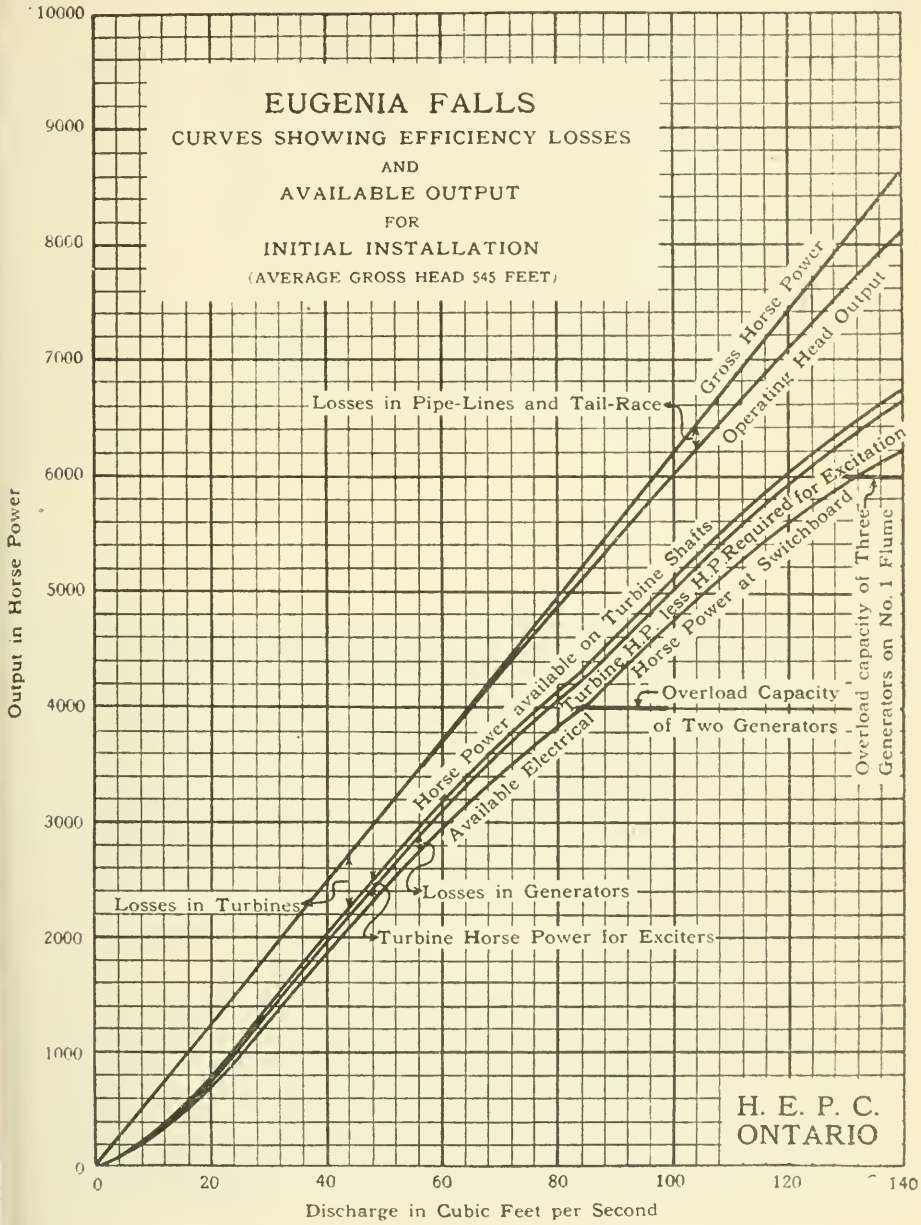
Wasdell's Falls—Dam and Forebay Side of Completed Power-House

Wasdell's Falls—Showing End of Enclosed Forebay, Front of Machine Room, and Transformer and Switch-Room Annex



Wasdell's Falls—Interior of Finished Power-House

cross-over connection to be controlled by a 36-in. valve is provided at the power-house end. The present installation consists of one wood pipe and one penstock, this being sufficient for the handling of the preliminary installed capacity of 4,000 e.h.p. At the junction of the wood stave pipe and the steel penstock, a differential



surge tank is provided, and at the power-house end of the penstock is located a 50-in. butterfly valve operated by an hydraulic impulse motor.

In the power-house sub-structure is to be installed a cast steel distributor pipe with connections for two 2,250 h.p. turbines. These turbines are of the reaction

type with spiral wheel-cases and overhung runners. They will operate at 900 revolutions per minute, and are equipped with 6,000-lb. fly-wheels and automatic by-pass relief valves direct connected to the governor.

The Order-in-Council authorizing the Commission to proceed with the development of power at Eugenia Falls for the supply of the Owen Sound district was issued under date of Nov. 6th, 1913.

Pursuant to this Order, plans and specifications covering the complete development were prepared, and tenders for the dams, canal and flume line excavation and head works were called for in May, 1914. A large number of tenders for this portion of the work were received, and after careful consideration of the same, the contract for No. 1 Dam was awarded to the Ambursen Hydraulic Construction Co. of Montreal, and the contract for No. 2 Dam, the canal, flume line excavation and head works was awarded to the Hyland Construction Co. of Toronto.

Under the terms of these contracts, Dam No. 1 was to be completed up to elevation 635 by December 25th, 1914, and No. 2 Dam, the head works, flume line excavation, and aproximately half of the canal excavation was to be completed by December 15th, 1914. Both contractors displayed great energy in starting and carrying on the work, with the result that the Hyland Construction Co. finished all the work required of them within the time limit, and the Ambursen Hydraulic Construction Co. not only fully met their contract obligations, but had so far completed the entire work on the contract that they were able to dismantle and partially remove their construction plant before Christmas

The contract for the wood stave pipe was awarded to the Pacific Coast Pipe Co. of Vancouver, B.C. The installation of this pipe is now under way and will shortly be completed.

The contract for the surge tank was awarded to the Canadian Allis-Chalmers Co. of Toronto, and while the material is fabricated in their shops, they have as yet made no start on the erection work at Eugenia.

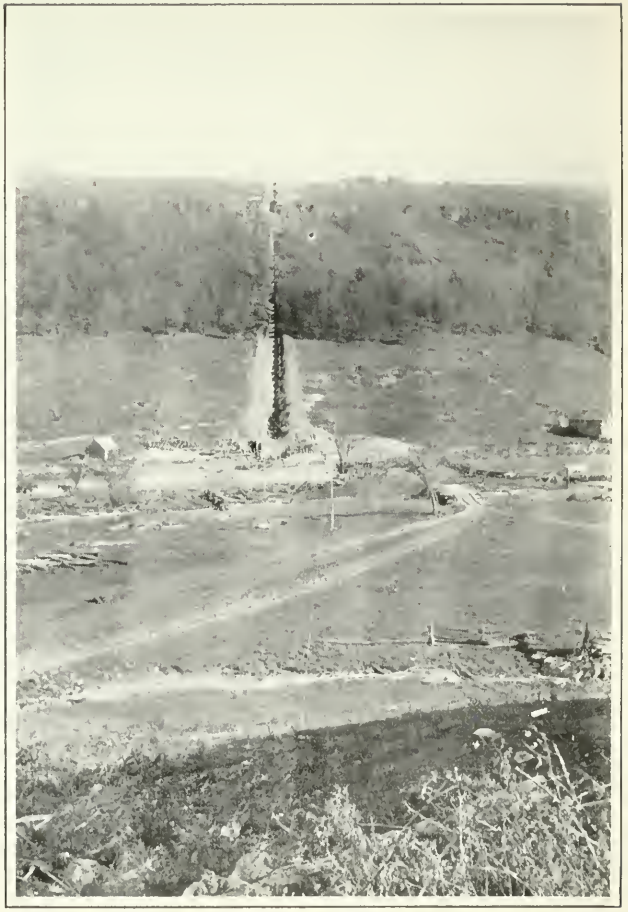
The contract for the steel penstock was awarded to the Thor Iron Works, Toronto. All the material for this penstock has been fabricated and delivered, and the erection of the same is now well under way.

The contract for the turbines was awarded to the Escher Wyss Co. of Zurich, Switzerland. A portion of the machinery has already been shipped from Zurich, and the balance of the order is to be shipped by the end of February, 1915.

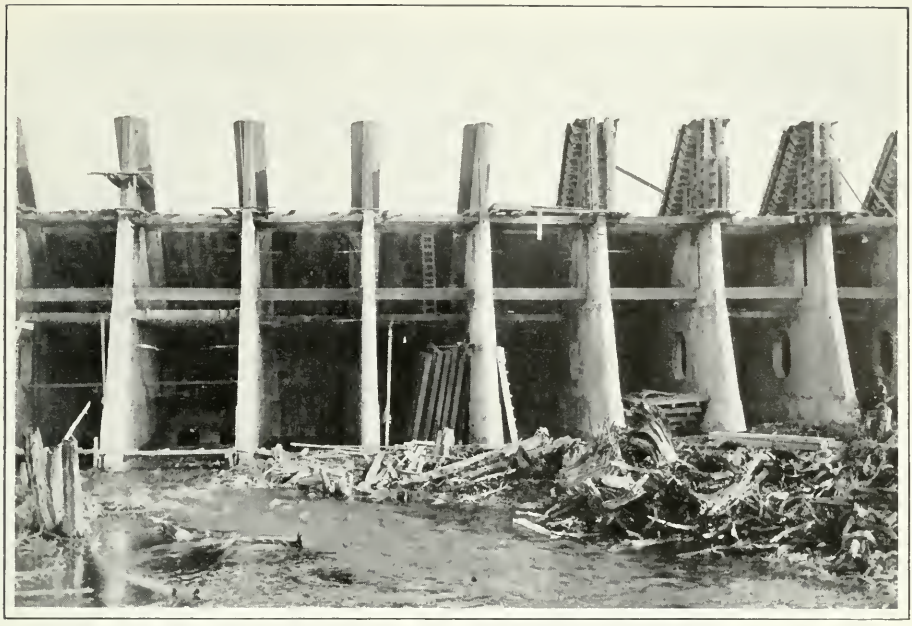
The 66-in. butterfly valves at the head-gates were constructed by the Boving Co. of Lindsay, Ontario, and have been installed. The 50-in. butterfly valve at the power-house is being built by the Canadian Allis-Chalmers Co., and is now in the shops ready for shipment.

A diagram is appended hereto showing in concise form the various hydraulic losses in the installation, and the gross and net output in horse power for various discharges and combinations of units.

Eugenia Falls—Showing Portion of Cut-Off Trench in No. 1 Dam, Cleaned Off Ready for Placing Concrete



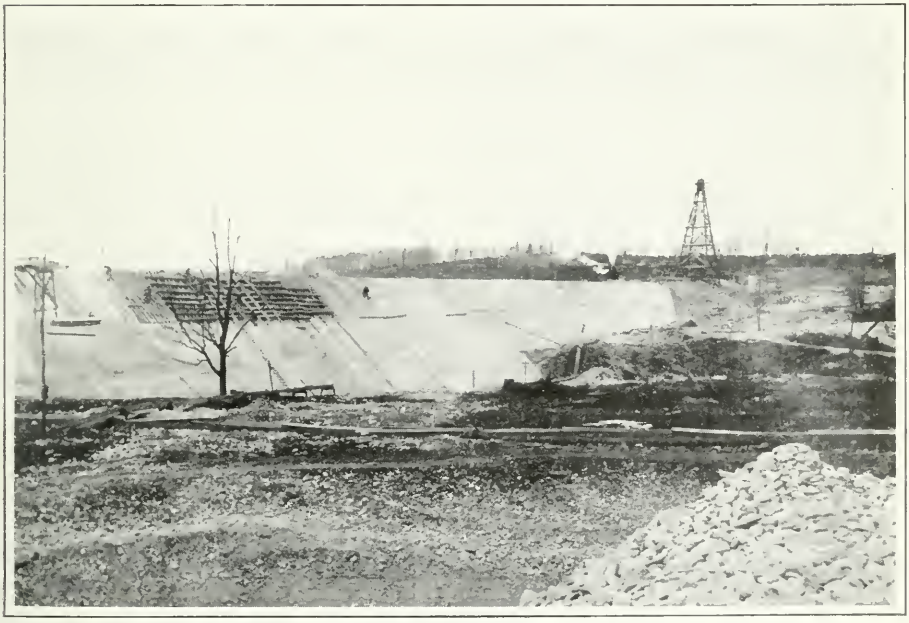
Eugenia Falls—Showing Power-House Location and Penstock Line



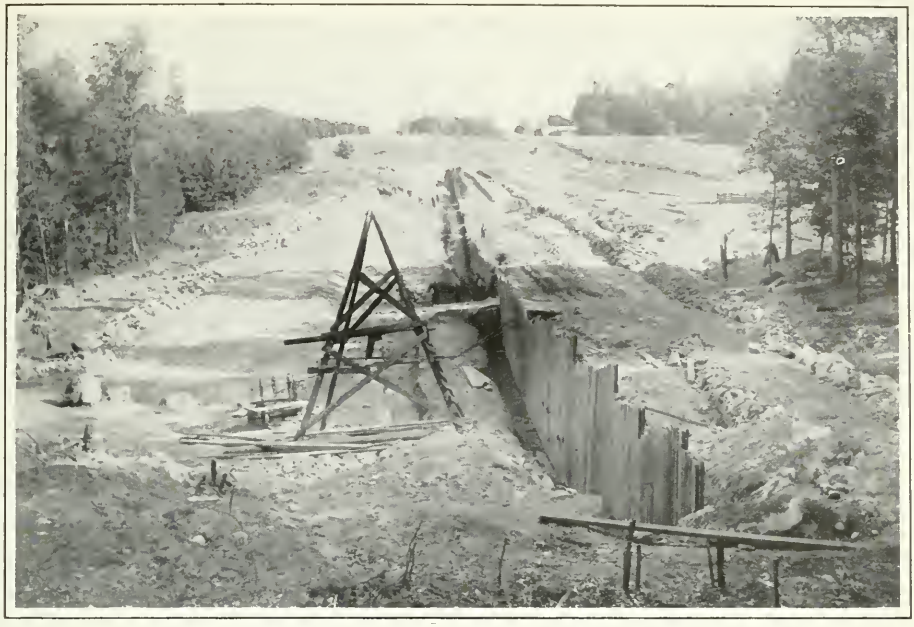
Eugenia Falls—Showing Buttresses of No. 1 Dam in Course of Construction

Eugenia Falls—Showing Line of Partially Completed Buttresses

Eugenia Falls—North Half of No. 1 Dam



Eugenia Falls—South Half of No. 1 Dam

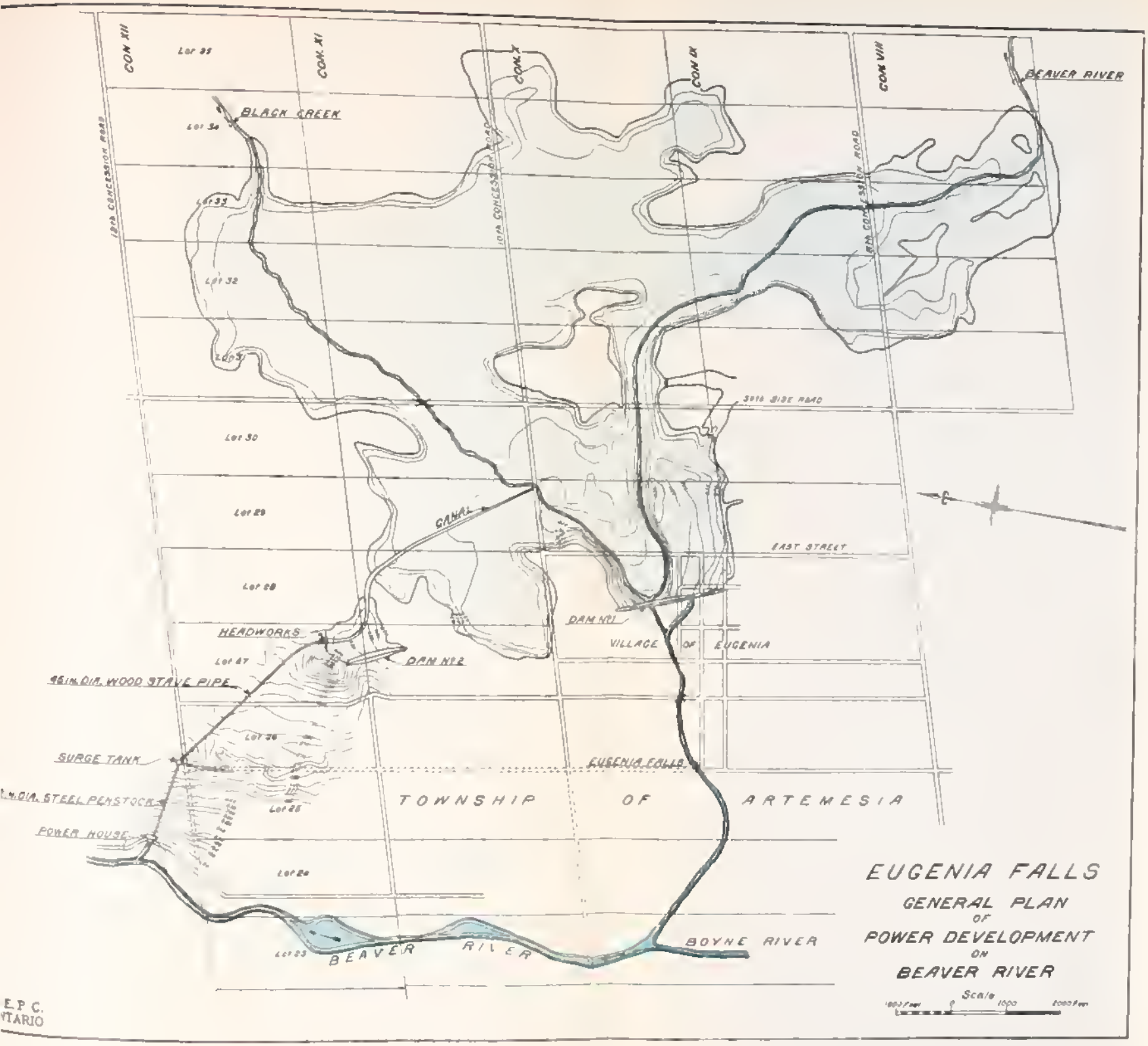


Eugenia Falls—No. 2 Dam in Early Stages of Construction

Eugenia Falls—Up-Stream Face of No. 2 Dam, Showing Unfinished Rip-Rap

Eugenia Falls—Lower End of Canal, and Gate-House Substructure

Eugenia Falls—Wood-Stave Pipe-Line Carried Across a Depression. Trestle Built of Cedar Cut from the Reservoir Basin


CON XII
CON XI
CON X
CON IX
CON VIII
BEAVER RIVER
BLACK CREEK
10th CONCESSION ROAD
9th CONCESSION ROAD
8th CONCESSION ROAD
Lot 35
Lot 34
Lot 33
Lot 32
Lot 31
Lot 30
Lot 29
Lot 28
Lot 27
Lot 26
Lot 25
Lot 24
Lot 23
SOUTH SIDE ROAD
EAST STREET
CANAL
DAM NO1
VILLAGE OF EUGENIA
HEADWORKS
DAM NO2
96 IN. DIA. WOOD STAVE PIPE
SURGE TANK
EUGENIA FALLS
TOWNSHIP OF ARTEMESIA
POWER HOUSE
BEAVER RIVER
BOYNE RIVER
EUGENIA FALLS
GENERAL PLAN
OF
POWER DEVELOPMENT
ON
BEAVER RIVER
Scale
1000
E.P.C.
ONTARIO

STREAM FLOW DATA

Regular Stations

River	Location	Drainage area sq. miles	Township	County or District
Beaver	at Eugenia	74	Artemesia	Grey
"	at Feversham	37	Osprey	"
"	near Kimberley	105	Euphrasia	"
Black	near Washago	598	Mara	Ontario
Blanche	near Englehart	230	Evanturel	Timiskaming Dist.
Credit	at Cataract Jct	91	Caledon	Peel
Eagle	at Eagle River	933	Aubrey	Kenora Dist.
English	at Caribou Falls			"
"	at Ear Falls			"
"	at Manitou Falls			"
"	near Oak Lake Falls			"
"	at Sturgeon Falls			"
Footprint	at Rainy Lake Falls	588	Indian Reserve, 17a.	Rainy River Dist.
Frederickhouse	at Frederickhouse	1,252	Clute	Timiskaming Dist.
Maganatawan	near Katrine	151	Armour	Parry Sound Dist.
"	at Knoefiler's Falls		Chapman	" "
Maitland	at Ben Miller	950	Colborne	Huron
Manitou	at Devil's Cascades	440		Rainy River Dist.
Mississagi	at Mississagi	3,522	Cobden	Algoma Dist.
Montreal	at Latchford		Coleman	Timiskaming Dist.
Muskoka	at Tretheway's Falls	658	Draper	Muskoka Dist.
Nottawasaga	near Nicolston	325	Essa	Simcoe
Saugeen	near Port Elgin	1,565	Saugeen	Bruce
"	near Walkerton	895	Brant	Bruce
Seguin	near Parry Sound	363	McDougal	Parry Sound Dist.
Seine	at Skunk Rapids	3,483	near Bennett	Rainy River Dist.
Severn	at Severn Bridge	2,075	Morrison	Muskoka Dist.
South	near Powassan	322	Himsworth	Parry Sound Dist.
Spanish	at Espanola	6,949	Merrit	Sudbury Dist.
Sturgeon	near Smoky Falls	2,135	Springer	Nipissing Dist.
Teeswater	at Paisley	227	Elderslie	Bruce
Thames, Main stream	near Byron	1,270	Westminster	Middlesex
" North branch	at London, Richmond St	615	London	"
" South branch	" Adelaide St.	515	London	"
Turtle	at Mountain Rapids	1,841	near Indian Res., 26c	Rainy River Dist.
Vermilion	near White Fish	1,900	Graham	Sudbury Dist.
Wabigoon	near Quibell	1,612	Wabigoon	Kenora Dist.
"	at Wabigoon Falls	1,026		"
Wahnapitae	near Wahnapitae	910	Dryden	Sudbury Dist.

Thames River (Main Stream) near Byron

Location —At a highway bridge known as Kilworth's Bridge, about 2 miles north-west of the Town of Byron, Westminster Township, County of Middlesex.

Records Available —Monthly discharge measurements, March, 1912, to Nov., 1914. Daily gauge heights, March 13 to Dec. 31, 1914.

Drainage Area —1,270 square miles.

Gauge —Vertical steel staff gauge with enamelled face, graduated in feet and inches, and attached to the downstream side of the centre pier of the bridge. Zero on the gauge (elevation 6.00) is referred to a bench mark (elevation 31.21) painted on the downstream side of the right abutment.

Channel.—Straight for about 700 feet below and 500 feet above the station. The banks are high, fairly clean and sandy at the section. The banks below and above are liable to overflow. The current is swift, and the bed of the stream is sandy and shifting.

Discharge Measurements —Made from the bridge with a large Price current meter.

Control —There is a dam 3 miles above the station, which is used by the City of London Waterworks and Power Plant. The fluctuating loads on the turbines, produced by the operation of the plant, cause fluctuations in the river stage below the dam.

Winter Flow —During the winter months the river is covered with ice, and the measurements are taken through the ice to determine the winter discharge.

Floods —In March, 1912 the water rose, doing considerable damage to property along the entire length of the river and greatly widening the channel.

Observer —Jas. Bourne, Komoka, Ont.

Discharge Measurements of Thames River (Main Stream) near Byron in 1912-3

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1912							
Mar. 12....	Roberts, E.....	.....	231	1.23	.....	284	.....
June 29....	"	.....	298	.84	5.98	250	.....
July 26....	"	.....	186	1.05	5.90	195	.....
Aug. 27....	"	.....	254	1.71	6.30	435	.....
Sept. 27....	"	.....	368	2.70	6.90	994	.....
Oct. 30....	"	.....	271	2.20	6.40	595	.....
Nov. 28....	"	.....	368	2.70	6.90	996	.....
Dec. 24....	"	.....	271	2.23	6.40	606	.....
1913							
Jan. 27....	"	.....	944	4.69	9.50	4431	.....
Feb. 26....	"	.....	368	2.23	6.90	822	.....
Mar. 27....	"	.....	1547	6.23	12.00	9641	.....
April 24....	"	.....	919	5.22	9.40	4750	.....
May 23....	"	.....	278	1.75	6.30	487	.....
June 19....	Murray, W. S...	205	230	1.01	6.20	261	.....
July 18....	"	210	182	1.11	5.90	202	.....
Aug. 22....	"	175	231	1.39	6.20	322	.....
Sept. 26....	"	205	193	1.06	5.95	206	.....
Oct. 30....	"	200	234	1.55	6.22	363	.....
Nov. 28....	"	.....	440	4.18	7.40	1846	.....
Dec. 27....	"	.....	230	1.26	6.20	299	.....
1914							
Jan. 9....	"	235	943	5.88	9.50	5541	.....
Feb. 26 (a)	"	230	457	0.93	8.30	426	.....
Mar. 27....	"	240	1229	5.88	10.65	7231	.....
April 30....	"	225	530	2.63	7.65	2017	.....
May 28....	"	214	421	2.94	7.00	1237	.....
June 24....	"	210	275	1.56	6.58	429	.....
July 29....	"	190	260	1.34	6.41	349	.....
Sept. 1....	"	192	298	1.92	6.58	574	.....
Sept. 29....	"	207	243	.83	6.30	202	.....
Oct. 27....	"	190	198	0.79	6.33	156	.....
Nov. 27....	"	170	366	3.59	7.29	1309	.....

(a) Ice jam

Daily Gauge Height and Discharge of Thames River (Main Stream) near Byron for 1914

Drainage Area 1,270 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	.....	.....	.....	.....	.....	.....	.....	.....	7.65	2100	6.75	830	6.50	555	6.08	275	6.67	730	6.33	420	6.42	490	7.67	2120
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	1698	6.75	830	6.58	630	6.08	275	7.92	2500	6.33	420	6.42	490	8.08	2750
3	.....	.....	.....	.....	.....	.....	.....	.....	7.08	1295	6.67	730	6.58	630	6.17	320	7.33	1645	6.33	420	6.42	490	7.75	2250
4	.....	.....	.....	.....	.....	.....	.....	.....	7.00	1180	6.67	730	6.50	555	6.17	320	6.92	1065	6.25	365	6.42	490	7.33	1660
5	.....	.....	.....	.....	.....	.....	.....	.....	8.42	3210	6.75	830	6.33	420	6.17	320	6.75	830	6.25	365	6.42	490	7.25	1550
6	.....	.....	.....	.....	.....	.....	.....	.....	10.00	6200	7.00	1180	6.50	555	6.17	320	6.75	830	6.25	365	6.42	490	7.00	1180
7	.....	.....	.....	.....	.....	.....	.....	.....	9.42	5075	6.83	940	6.50	555	6.25	365	6.58	630	6.17	320	6.42	490	7.92	2500
8	.....	.....	.....	.....	.....	.....	.....	.....	8.58	3575	6.83	940	6.42	490	6.17	320	6.58	630	6.25	365	6.42	490	7.75	2250
9	.....	.....	.....	.....	.....	.....	.....	.....	8.08	2750	7.00	1180	6.42	490	6.08	275	6.50	555	6.25	365	6.33	420	7.92	2500
10	.....	.....	.....	.....	.....	.....	.....	.....	7.42	1775	6.92	1065	6.42	490	6.25	365	6.50	555	6.33	420	6.33	420	7.67	2120
11	.....	.....	.....	.....	.....	.....	.....	.....	7.25	1335	6.83	940	6.42	490	6.17	320	6.42	490	6.25	365	6.33	420	7.58	2010
12	.....	.....	.....	.....	.....	.....	.....	.....	7.17	1420	6.67	730	6.42	490	6.33	420	6.42	490	6.25	365	6.33	420	7.50	1900
13	.....	.....	.....	.....	7.82	2350	.....	.....	7.83	2360	6.58	630	6.50	555	6.08	275	6.42	490	6.33	420	6.42	490	6.58	630
14	.....	.....	.....	.....	8.02	2740	.....	.....	7.67	2120	6.58	630	6.50	555	6.08	275	6.33	420	6.42	490	6.50	555	6.00	250
15	.....	.....	.....	.....	9.40	5037	.....	.....	7.42	1775	6.50	555	6.50	555	6.08	275	6.33	420	6.42	490	6.67	730	6.00	250
16	.....	.....	.....	.....	11.57	9260	.....	.....	7.17	1420	6.50	555	6.50	555	6.25	365	6.33	420	6.42	490	6.92	1065	6.75	830
17	.....	.....	.....	.....	11.40	8930	.....	.....	7.00	1180	6.50	555	6.50	555	6.33	420	6.33	420	6.42	490	7.50	1900	6.83	940
18	.....	.....	.....	.....	10.40	8930	.....	.....	6.83	940	6.42	490	6.42	490	6.25	365	6.33	420	6.42	490	7.17	1420	6.00	250
19	.....	.....	.....	.....	8.90	4125	.....	.....	6.75	830	6.50	555	6.25	365	6.50	555	6.33	420	6.33	420	7.08	1295	6.00	250
20	.....	.....	.....	.....	7.90	2468	.....	.....	6.75	830	6.50	555	6.42	490	6.75	830	6.33	420	6.33	420	6.83	940	6.83	940
21	.....	.....	.....	.....	7.74	2230	.....	.....	6.67	730	6.50	555	6.33	420	7.17	1420	6.25	365	6.33	420	6.67	730	6.83	940
22	.....	.....	.....	.....	7.67	2120	.....	.....	6.75	830	6.50	555	6.33	420	6.67	730	6.25	365	6.33	420	6.67	730	7.00	1180
23	.....	.....	.....	.....	7.40	1745	.....	.....	6.75	830	6.50	555	6.42	490	6.50	555	6.33	420	6.33	420	6.58	630	7.17	1420
24	.....	.....	.....	.....	7.32	1650	.....	.....	6.75	830	6.58	630	6.33	420	6.50	555	6.33	420	6.33	420	6.58	630	7.17	1420
25	.....	.....	.....	.....	7.57	1985	.....	.....	6.67	730	6.50	555	6.33	420	6.42	490	6.33	420	6.33	420	6.75	830	7.08	1295
26	.....	.....	.....	.....	9.40	5037	8.90	4125	6.92	1065	6.58	630	6.17	320	6.33	420	6.33	420	6.25	365	6.75	330	6.92	1065
27	.....	.....	.....	.....	9.74	5695	8.49	3420	7.00	1180	6.58	630	6.42	490	6.33	420	6.33	420	6.25	365	8.25	3040	6.83	940
28	.....	.....	.....	.....	13.40	12830	7.82	2350	7.00	1180	6.58	630	6.25	365	6.25	365	6.25	365	6.33	420	8.08	2750	7.00	1180
29	.....	.....	.....	.....	.....	.....	7.74	2230	6.92	1065	6.58	630	6.33	420	6.33	420	6.25	365	6.42	490	7.42	1775	7.00	1180
30	.....	.....	.....	.....	.....	.....	7.63	2070	6.83	940	6.58	630	6.33	420	6.33	420	6.25	365	6.42	490	7.42	1775	6.92	1065
31	.....	.....	.....	.....	.....	.....	.....	.....	6.83	940	.....	.....	6.08	275	6.25	365	.....	.....	6.42	490	.....	.....	6.92	1065

Monthly Discharge of Thames River (Main Stream) near Byron for 1914

Drainage Area 1,270 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	.....	.....	.....	.....	.....	.....	.....
February	.....	.....	.....	.....	.....	.....	.....
March	.....	.....	.....	.....	.....	.....	.....
April	.....	.....	.....	.....	.....	.....	.....
May	6,200	730	1,722	4.88	.57	1.36	1.57
June	1,180	730	715	.93	.57	.563	.62
July	630	275	482	.50	.22	.38	.44
August	1,420	275	432	1.12	.22	.34	.39
September	2,500	365	610	1.97	.29	.481	.54
October	490	320	419	.39	.25	.33	.38
November	3,040	420	924	2.39	.33	.73	.81
December	2,750	250	1,351	2.16	.20	1.06	1.22
The period	6,200	250	833	4.88	.20	.65	5.97

Thames River (South Branch) at London

Location —At McClary's Highway Bridge, near the foot of Adelaide Street, in the city of London, Township of London, County of Middlesex.

Records Available —Monthly discharge measurements, June, 1913, to Nov., 1914.

Drainage Area —515 square miles.

Gauge —Bench mark gauge located on the downstream side of the bridge, painted B.M. on the bottom chord, 7 feet from the right abutment. Assumed elevation of bench mark 40.00 feet.

Channel —Straight for about ¼ mile above and 1 mile below the station. The banks are low, clean and liable to overflow at high stages. The current is slow. The bed of the stream is composed of clay, a number of large boulders, and is practically permanent. The flow of the river is confined between both abutments of the bridge at all stages.

Discharge Measurements —Made from the downstream side of the highway bridge with a large Price current meter.

Winter Flow —During the winter months the river is covered with ice, and measurements are taken through the ice to determine the winter flow.

Control —This branch enters the main stream of the Thames River, 2 miles below the station. There are no dams above the gauging section. During the winter months the ice causes backwater.

Accuracy —The gauge heights are unreliable on account of backwater from a dam on the main stream.

Discharge Measurements of Thames River (South Branch) at London in 1913-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1913							
June 19....	Murray, W. S...	157	283	0.37	21.13	107	0.21
July 18....	" ...	157	306	0.24	21.20	74	0.14
Aug. 22....	" ...	157	307	0.21	21.30	67	0.04
Sept. 26....	" ...	157	248	0.08	20.90	21	0.41
Oct. 30....	" ...	157	329	0.76	21.45	249	0.48
Nov. 28....	" ...	157	395	1.00	22.00	419	0.81
1914							
Jan. 29....	" ...	155	696	1.13	23.90	987	1.92
Mar. 28....	" ...	155	680	2.62	23.80	1785	3.46
Apr. 30....	" ...	155	522	0.62	22.84	323	0.63
May 28....	" ...	157	467	1.54	22.50	720	1.40
June 24....	" ...	157	221	0.62	20.71	138	0.27
July 29....	" ...	157	292	0.10	21.21	32	0.06
Sept. 1....	" ...	157	367	0.66	21.70	245	0.48
Oct. 27....	" ...	157	393	0.66	21.92	238	0.46
Nov. 27....	" ...	157	394	0.59	21.92	232	0.45

Thames River (North Branch) at London

Location—At the Richmond Street Highway Bridge, in the city of London, Township of London, County of Middlesex.

Records Available—Monthly discharge measurements, June, 1913, to Nov., 1914.

Drainage Area—615 square miles.

Gauge—Bench mark guage (assumed elevation 35.00) located on the upstream side of bridge, painted B. M. on the bottom chord, 15 feet from the right abutment.

Channel—The bed of the stream is composed of clay and gravel which is slightly shifting. The banks are low and liable to overflow. The flow of the river is confined between both abutments of the bridge at all stages.

Discharge Measurements—Made from the upstream side of the highway bridge during ordinary and high stages. At low stages of the river a wading section is used, 100 yards upstream.

Winter Flow—The river is covered with ice during the winter months, and measurements are made through the ice to determine the winter discharge.

Control—A dam about ¼ mile above the station affects the flow somewhat at low stages. Another dam located 4 miles below the section does not interfere with the stage of the river at the station. This branch enters the main stream of the Thames River, 1½ miles downstream.

Discharge Measurements of Thames River (North Branch) at London in 1913-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1913							
June 20....	Murray, W. S. ..	63	65	0.92	11.00	60	0.98
July 18....	" ..	65	66	0.56	11.10	37	0.60
Aug. 22....	" ..	70	73	1.79	11.40	132	0.21
Sept. 26....	" ..	50	58	0.20	10.70	12	0.02
Oct. 30....	" ..	62	71	0.83	11.17	45	0.07
Nov. 28....	" ..	.....	817	1.05	12.90	865	1.41
1914							
Jan. 29....	" ..	188	1195	1.66	15.30	1994	3.22
Feb. 27(a).	" ..	.....	.....	.....	12.00	nil	.....
Mar. 27....	" ..	188	1993	2.97	16.60	5755	9.40
Apr. 30....	" ..	187	704	0.61	12.71	430	0.70
May 28....	" ..	66	85	1.64	11.90	139	0.23
June 24....	" ..	60	69	0.89	11.25	62	0.10
July 29....	" ..	52	63	0.54	10.50	34	0.05
Sept. 1....	" ..	55	85	2.10	11.80	180	0.29
Oct. 27....	" ..	49	52	0.66	10.92	34	0.05
Nov. 27....	" ..	188	838	1.47	13.42	1232	2.01

(a) Ice jam below section

Maitland River at Ben Miller

Location —At a highway bridge known as the Ben Miller Bridge, in the Village of Ben Miller, about 6 miles southwest of the Town of Goderich, in the Township of Colborne, County of Huron.

Records Available —May, 1911, to Dec. 31st, 1914.

Drainage Area —950 square miles.

Gauge —Vertical steel staff guage with enamelled face, graduated in feet and inches and located on the downstream side of the first pier from the left abutment. The zero on the gauge (elev. 12.00) is referred to a bench mark (elev. 29.07) painted on the downstream side of the right wing wall, in the upper outside corner, and a bench mark (elev. 30.00) on the top of right abutment.

Channel —Straight for about 300 feet above and ¼ mile below the station. Both banks are low, clean, and liable to overflow at high stages. The bed of the stream is composed of limestone, and will not shift. The current is sluggish at the station, but swift immediately below. The river flows between the piers at the station, forming 3 channels at all stages.

Discharge Measurements —Made from the bridge at ordinary and high stages. At low stages of the river measurements are made 75 feet below the station by wading.

Control —There are numerous small dams at the towns and villages above the station at which points the intermittent operation of the mills affect the measurements. A mill situated near the gauging section has a decided effect on the gauge at low stages of the river.

Winter Flow —During the winter months the river is covered with ice, and measurements are made through the ice, to determine the winter discharge.

Maximum and Minimum Flow —The highest recorded stage of the river occurred on April 7, 1912, when the height was approximately 9.60 feet above the zero of the present gauge. The corresponding discharge was approximately 65,000 second-feet. In the months of September and October, 1913, and August, 1914, the lowest stage recorded was 0.92 feet above zero of the gauge, the corresponding discharge being approximately 70 second-feet.

Accuracy —The records for ordinary and high flows are beleived to be good. Owing to the conditions mentioned above, the discharge measurements, taken when the mills were not running, are somewhat low. The rating curve is well defined.

Observer —E. Pfrimmer, Ben Miller P.O., Ontario.

Discharge Measurements of Maitland River at Ben Miller in 1912-3-4.

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1912							
Jan. 27....	Roberts, E.....	.....	418	1.80	.....	752	.....
Feb. 29....	"	.....	.....	.....	.....	505	.....
Mar. 28....	"	.....	784	2.70	15.59	2117	.....
Apr. 26....	"	.....	645	2.23	14.40	1437	.....
May 30....	"	.....	1282	4.53	16.13	5815	.....
June 27....	"	.....	470	0.50	13.47	237	.....
July 25....	"	.....	575	0.86	13.77	496	.....
Aug. 26....	"	.....	716	1.30	14.17	929	.....
Sept. 26....	"	.....	788	1.78	14.37	1405	.....
Oct. 29....	"	.....	656	1.26	13.97	824	.....
Nov. 27....	"	.....	788	1.72	14.37	1356	.....
Dec. 22....	"	.....	717	1.31	14.17	938	.....
1913							
Jan. 26....	"	.....	1226	4.11	15.57	5042	.....
Feb. 25....	"	.....	824	1.92	14.47	1590	.....
Mar. 25....	"	.....	2122	7.39	18.07	15688	.....
Apr. 23....	"	.....	646	1.19	13.95	771	.....
May 21....	"	.....	530	0.76	13.67	407	.....
June 18....	Murray, W. S...	108	62	1.75	13.15	108	.....
July 17....	" ...	116	50	1.08	13.07	93	.....
Aug. 21....	" ...	111	55	1.71	13.00	94	.....
Sept. 25 (a)	" ...	134	72	1.16	13.15	84	.....
Oct. 29....	" ...	345	493	0.78	13.60	389	.....
Nov. 26....	" ...	.....	813	1.96	14.45	1591	.....
Dec. 28....	" ...	.....	579	0.85	13.80	492	.....
1914							
Jan. 28 (b)	" ...	360	929	1.05	14.72	1474	.....
Feb. 25 (c)	" ...	340	524	0.72	14.35	380	.....
Mar. 24....	" ...	351	837	2.14	14.55	1798	.....
Apr. 29....	" ...	352	640	1.43	14.00	920	.....
May 28....	" ...	352	489	0.71	13.54	347	.....
June 23....	" ...	303	165	1.28	13.34	213	.....
July 29 (a)	" ...	96	41	1.15	13.04	43	.....
Aug. 31 (a)	" ...	102	56	1.22	13.16	68	.....
Sept. 28 (a)	" ...	116	62	1.40	13.16	87	.....
Oct. 26 (a)	" ...	155	65	1.30	13.16	84	.....
Nov. 27....	" ...	350	693	1.34	14.14	932	.....

(a) When the mill near the station is not running the discharge measurements are affected at low stages
(b) Ice on control
(c) Ice jam

Daily Gauge Height and Discharge of Maitland River at Ben Miller for 1911

Drainage Area, 950 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec ft.*	*Feet*	*Sec-ft.*
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.63	355	13.30	140	13.34	155	13.22	115	13.72	450	13.93	700	15.26	3525
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.59	325	13.26	125	13.32	150	13.22	115	13.80	525	13.97	800	15.05	2950
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.72	450	13.32	115	13.30	140	13.22	115	13.80	525	14.01	850	14.76	2225
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.63	355	13.20	110	13.55	285	13.22	115	13.80	525	13.97	800	14.38	1380
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.72	450	13.18	105	13.55	285	13.22	115	13.76	500	14.01	850	14.30	1235
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.63	355	13.30	140	13.38	175	13.30	140	13.76	500	14.01	850	14.38	1380
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.59	325	13.43	205	13.38	175	13.30	140	13.72	450	14.30	1230	14.30	1235
8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.61	335	13.36	165	13.43	205	13.34	155	13.68	400	14.55	1750	14.38	1380
9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.63	355	13.38	175	13.38	175	13.34	155	13.63	355	15.05	2950	14.88	2550
10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.61	335	13.38	175	13.38	175	13.34	155	13.63	355	14.88	2550	15.22	3400
11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.61	335	13.30	140	13.38	175	13.34	155	13.68	400	14.88	2550	15.72	4950
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.63	355	13.26	125	13.38	175	13.43	205	13.72	450	15.05	2950	15.68	4900
13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.76	500	13.24	120	13.38	175	13.47	225	13.63	355	15.05	2950	15.59	4550
14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.80	525	13.22	115	13.34	155	13.47	225	13.59	325	14.97	2800	15.22	3400
15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.84	570	13.20	110	13.30	140	13.47	225	13.55	285	14.88	2550	14.97	2800
16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.76	500	13.22	115	13.34	155	13.43	205	13.55	285	14.76	2225	14.76	2225
17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.76	450	13.47	225	13.43	205	13.43	205	13.55	285	14.72	2150	14.63	1950
18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.63	355	13.53	270	13.38	175	13.38	175	13.63	355	15.22	3400	14.51	1650
19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.50	245	13.40	185	13.34	155	13.38	175	13.76	500	15.26	3525	14.47	1600
20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.47	225	13.59	325	13.30	140	13.34	155	13.88	615	15.30	3550	14.38	1380
21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.43	205	13.43	205	13.26	125	13.34	155	13.80	525	15.26	3525	14.13	1000
22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.38	175	13.36	165	13.25	125	13.34	155	13.93	685	15.22	3400	14.30	1300
23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.38	175	13.30	140	13.24	120	13.38	175	14.22	1100	15.13	3200	14.47	1600
24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.38	175	13.38	175	13.24	120	13.38	175	14.47	1600	15.01	2900	14.55	1750
25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.38	175	13.38	175	13.26	125	13.38	175	14.43	1500	14.93	2675	14.47	1600
26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.38	175	13.43	205	13.30	140	13.38	175	14.34	1350	14.76	2225	14.43	1500
27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.36	165	13.43	205	13.30	140	13.47	225	14.22	1150	14.68	2050	14.38	1380
28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.36	165	13.38	175	13.30	140	13.55	285	14.09	925	15.05	2950	14.26	1225
29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.34	155	13.30	140	13.22	115	13.55	285	14.01	850	15.55	4425	14.18	1100
30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.32	150	13.38	175	13.18	105	13.63	355	13.97	800	15.51	4300	14.18	1100
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.38	175	13.22	115	.....	.....	13.93	700	.....	.....	14.97	2800

Daily Gauge Height and Discharge of Maitland River at Ben Miller for 1912

Drainage Area, 950 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	14.68	2050	.....	.....	.....	4900	16.47	8875	13.88	620	14.93	2820	13.43	205	13.43	205	15.13	3400	14.47	1570	14.47	1570	14.39	1425
2	14.73	2250	.....	.....	.....	4900	16.72	9950	13.72	440	14.63	1990	13.39	180	13.39	180	15.97	6750	14.51	1665	15.05	3175	14.72	2250
3	14.72	2150	.....	.....	15.47	4600	16.55	9200	13.76	480	14.63	1990	13.39	180	13.47	225	15.80	6000	14.47	1570	15.30	3950	15.22	3700
4	14.84	2550	.....	.....	15.47	4600	16.55	9200	13.84	570	15.22	3700	13.39	180	13.43	205	15.38	4300	14.34	1310	15.39	4350	16.05	7000
5	14.13	1020	.....	.....	15.38	4300	16.63	9600	13.80	525	15.13	3400	13.34	165	13.39	180	14.97	2950	14.13	1020	15.22	3700	15.63	5275
6	14.47	1570	.....	.....	15.30	3950	20.26	41600	13.84	570	14.80	2450	13.34	165	13.39	180	14.63	1990	14.09	905	15.26	3900	15.68	5500
7	15.80	6000	.....	.....	15.22	3700	21.60	65000	13.80	525	14.55	1800	13.34	165	13.34	165	14.38	1380	14.05	850	16.40	8600	15.47	4600
8	16.22	7800	.....	.....	15.13	3400	20.22	41100	13.84	570	14.47	1570	13.30	140	13.39	180	14.22	1100	13.97	740	16.30	8150	15.22	3700
9	16.22	7800	.....	.....	15.09	3300	17.88	15000	13.84	570	14.30	1230	13.39	180	13.43	205	14.09	905	13.88	620	16.13	7450	14.76	2490
10	16.13	7450	.....	.....	15.09	3300	17.05	11400	13.80	525	14.13	965	13.39	180	13.43	205	13.97	740	14.01	785	15.88	6375	13.72	440
11	16.09	7275	.....	.....	15.05	3175	16.55	9200	13.76	480	13.97	740	13.39	180	13.47	225	13.88	620	14.13	1020	15.55	4950	13.97	740
12	16.01	6900	.....	.....	15.05	3175	16.05	7000	13.80	525	13.97	740	13.34	165	13.55	285	13.80	525	14.30	1230	15.30	3950	14.09	905
13	15.97	6750	.....	.....	15.05	3175	15.80	6000	13.88	620	13.88	620	13.34	165	13.72	440	13.72	440	14.34	1310	15.47	4600	14.13	965
14	15.97	6750	.....	.....	14.97	2950	15.55	4950	14.13	965	13.84	570	13.34	165	13.63	355	13.72	440	14.30	1230	16.80	10300	14.43	1485
15	15.88	6375	.....	.....	14.97	2950	15.72	5650	14.63	1990	13.80	525	13.34	165	13.55	285	13.80	525	14.26	1165	16.22	7800	14.59	1885
16	15.84	6175	.....	.....	14.97	2950	15.63	5275	14.55	1800	13.80	525	13.39	180	13.47	225	14.01	785	14.09	905	15.76	5825	14.72	2250
17	15.80	6000	.....	.....	14.97	2950	15.46	4600	14.55	1800	13.76	480	13.39	180	13.43	205	14.13	965	14.01	785	15.39	4350	14.63	1990
18	15.80	6000	.....	.....	14.80	2450	15.30	3950	14.63	1990	13.72	440	13.34	165	13.51	255	14.22	1100	13.97	740	15.13	3400	14.51	1660
19	15.76	5825	.....	.....	14.88	2680	15.18	3575	14.89	2690	13.68	400	13.30	140	13.47	225	14.30	1230	14.13	1020	14.97	2950	14.43	1485
20	15.84	6175	.....	.....	14.97	2950	15.01	3050	15.30	3950	13.68	400	13.30	140	13.47	225	14.42	1465	14.51	1660	14.82	2500	14.30	1230
21	15.88	6375	.....	.....	14.80	2450	14.76	2490	16.13	7450	13.59	325	13.47	225	13.80	525	14.47	1570	14.42	1465	14.72	2250	14.26	1165
22	15.88	6375	.....	.....	15.38	4300	14.68	2100	17.38	12800	13.55	285	13.63	355	13.88	620	14.42	1465	14.30	1230	14.68	2100	14.17	1025
23	15.84	6175	.....	.....	15.38	4300	14.55	1800	17.30	12400	13.51	255	13.63	355	14.01	785	14.47	1570	14.30	1230	14.49	1610	14.13	965
24	15.84	6175	.....	.....	15.47	4600	14.47	1570	16.97	11000	13.47	225	13.76	480	14.01	785	14.38	1380	14.26	1165	14.47	1570	14.05	850
25	15.84	6175	.....	.....	15.47	4600	14.42	1465	16.63	9600	13.43	205	13.76	480	14.09	905	14.34	1310	14.18	1040	14.47	1570	14.09	905
26	15.84	6175	.....	.....	15.51	4775	14.38	1380	16.05	7000	13.47	225	13.72	440	14.13	965	14.34	1210	14.09	905	14.43	1485	14.09	905
27	.....	6000	.....	.....	15.59	5100	14.22	1100	15.80	6000	13.47	225	13.63	355	13.97	740	14.38	1380	14.09	905	14.41	1445	13.97	740
28	.....	6000	.....	.....	15.59	5100	14.18	1040	15.63	5275	13.47	225	13.51	255	13.88	620	14.38	1380	14.05	850	14.39	1425	13.97	740
29	.....	5700	.....	.....	15.63	5275	14.05	785	15.30	3950	13.46	220	13.43	205	13.84	570	14.42	1465	13.99	765	14.34	1310	13.97	740
30	.....	5500	.....	.....	15.88	6375	13.97	740	16.13	7450	13.43	205	13.34	165	13.80	525	14.47	1570	13.97	740	14.30	1230	13.93	680
31	.....	5100	.....	.....	16.30	8150	.....	.....	15.38	4300	.....	.....	13.43	205	13.72	440	.....	.....	13.93	680	.....	.....	13.89	635

Daily Gauge Height and Discharge of Maitland River at Ben Miller for 1913

Drainage Area, 950 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	13.93	680	14.80	2450	14.55	1880	16.55	9200	14.05	785	13.45	215	13.30	140	13.05	80	13.09	90	13.05	80	13.68	405	14.18	1070
2	14.05	785	14.63	1990	14.47	1570	15.63	5275	13.97	740	13.45	215	13.28	130	13.05	80	13.09	90	13.05	80	13.68	405	14.13	1010
3	14.05	785	14.53	1800	14.30	1230	15.92	6500	13.89	630	13.45	215	13.24	120	13.11	90	13.05	80	13.09	90	13.72	440	14.05	885
4	14.01	800	14.47	1570	14.22	1100	17.72	14200	13.76	480	13.43	205	13.30	140	13.05	80	13.05	80	13.09	90	13.72	440	14.01	800
5	13.92	670	14.39	1425	14.13	965	17.34	12600	13.72	440	13.43	205	13.30	140	13.03	75	13.05	80	13.11	90	13.72	440	13.97	750
6	14.18	1040	14.34	1310	13.97	740	16.30	8150	13.72	440	13.37	175	13.30	140	13.03	75	13.05	80	13.11	90	13.63	355	13.92	700
7	14.22	1100	14.30	1230	13.84	570	15.59	5100	13.68	400	13.37	175	13.26	125	13.03	75	13.05	80	13.09	90	13.63	355	14.01	800
8	14.30	1230	14.30	1230	13.72	440	15.22	3700	13.64	360	13.37	175	13.22	115	13.03	75	13.05	80	13.01	70	13.68	400	13.97	750
9	14.43	1485	14.30	1230	13.97	740	15.05	3175	13.64	360	13.37	175	13.22	115	13.24	120	13.05	80	12.97	70	13.72	440	13.97	750
10	14.47	1570	14.30	1230	14.30	1230	15.30	3950	13.60	330	13.34	165	13.22	115	13.42	195	13.05	80	12.97	70	13.80	525	13.92	700
11	14.55	1880	14.30	1230	14.55	1880	16.55	9200	13.55	285	13.34	165	13.13	95	13.42	195	13.05	80	13.26	125	13.80	525	13.92	700
12	14.77	2200	14.26	1165	14.84	570	16.38	8500	13.55	285	13.34	165	13.20	110	13.17	100	13.09	90	13.34	155	14.05	785	13.92	700
13	14.41	1445	14.22	1100	15.30	3950	16.13	7450	13.59	325	13.34	165	13.26	125	13.17	100	13.09	90	13.30	140	14.13	965	14.09	920
14	14.39	1425	14.14	980	17.18	11950	15.55	4950	13.59	325	13.34	165	13.24	120	13.15	100	13.09	90	13.17	100	14.18	1040	14.09	920
15	14.39	1425	14.14	980	19.72	34200	14.93	2820	13.59	325	13.32	150	13.07	85	13.13	95	12.97	70	13.17	100	14.18	1040	14.05	885
16	15.47	4600	14.14	980	17.80	14550	14.72	2250	13.59	325	13.26	125	13.07	85	13.13	95	13.05	80	13.13	95	14.13	965	14.05	885
17	17.05	11400	14.09	905	16.97	11000	14.55	1880	13.59	325	13.26	125	13.07	85	13.09	95	13.09	90	13.22	115	14.13	965	14.01	800
18	17.22	12100	14.05	850	16.30	8150	14.38	1380	13.59	325	13.22	115	13.07	85	13.13	95	13.09	90	13.30	140	14.22	1100	14.01	800
19	16.89	10700	14.22	1100	15.80	6000	14.30	1230	13.64	360	13.34	115	13.18	105	13.05	80	13.09	90	13.34	155	15.55	4950	13.97	750
20	16.72	9950	14.47	1570	16.22	7800	14.22	1100	13.64	360	13.37	175	13.17	100	13.13	95	13.17	100	13.34	155	15.97	6750	13.97	750
21	16.72	9950	14.47	1570	16.47	8875	14.13	965	13.64	360	13.34	165	13.13	95	13.15	100	13.17	100	13.38	175	15.59	5100	.....	750
22	16.55	9200	14.66	2025	16.34	8325	14.09	905	13.64	360	13.30	140	13.13	95	13.13	95	13.13	95	13.42	195	15.09	3300	.....	730
23	16.34	8350	15.38	4300	16.55	9200	14.13	965	13.59	325	13.30	140	13.13	95	13.13	95	13.09	90	13.51	255	14.89	2700	.....	750
24	16.13	7450	15.01	3050	15.11	3200	14.09	905	13.59	325	13.32	150	13.13	95	13.15	100	13.07	85	13.80	525	14.76	2250	.....	780
25	15.76	5825	15.01	3050	18.05	16700	14.09	905	13.55	285	13.32	150	13.11	90	13.15	100	13.17	100	13.80	525	14.63	1990	.....	780
26	15.55	4950	14.89	2690	17.47	13500	14.13	965	13.55	285	13.30	140	13.11	90	13.13	95	13.13	95	13.74	460	14.55	1880	.....	730
27	15.30	3950	14.80	2450	16.30	8150	14.22	1100	13.55	285	13.32	150	13.11	90	13.13	95	13.13	95	13.66	380	14.38	1390	.....	550
28	15.09	3300	14.68	2100	16.05	7100	14.22	1100	13.57	300	13.32	150	13.11	90	13.13	95	13.11	90	13.59	320	14.28	1200	13.80	492
29	14.84	2550	.....	.....	15.92	6500	14.18	1040	13.51	255	13.30	140	13.09	90	13.11	90	12.99	70	13.63	355	14.13	965	.....	530
30	14.72	2250	.....	.....	15.80	6000	14.09	905	13.47	225	13.32	150	13.09	90	13.11	90	13.05	80	13.63	355	14.13	965	.....	630
31	14.97	2950	.....	.....	16.05	7100	.....	.....	13.47	225	.....	.....	13.09	90	13.11	90	.....	.....	13.63	355	.....	.....	.....	630

Daily Gauge Height and Discharge of Maitland River at Ben Miller for 1914

Drainage Area, 950 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	.....	620	15.39	4300	14.22	1100	16.63	9600	13.92	670	13.56	295	13.40	185	13.02	78	13.33	150	13.13	95	13.31	145	14.35	1330
2	.....	620	15.22	3590	14.26	1160	16.63	9600	13.92	670	13.44	205	13.40	185	13.02	78	13.33	150	13.17	103	13.31	145	14.48	1590
3	.....	650	15.01	3050	14.26	1160	16.22	7800	13.92	670	13.42	195	13.30	140	13.00	76	13.38	175	13.17	103	13.38	175	14.44	1505
4	.....	720	14.89	2710	14.26	1160	15.72	5680	14.00	780	13.60	328	13.38	175	13.00	76	13.38	175	13.13	95	13.42	195	14.33	1290
5	.....	650	14.72	2100	14.28	1200	15.30	3900	14.00	780	13.67	392	13.33	150	13.00	76	13.38	175	13.17	103	13.48	235	14.25	1155
6	.....	700	14.60	1880	14.22	1100	14.96	2910	14.00	780	13.67	392	13.29	135	13.04	80	13.42	195	13.13	95	13.50	245	14.17	1030
7	.....	730	14.47	1570	14.22	1100	14.72	2100	14.08	895	13.60	328	13.25	125	12.92	70	13.42	195	13.17	103	13.46	220	13.96	725
8	.....	720	13.88	618	14.22	1100	14.63	1880	13.92	665	13.52	262	13.25	125	12.92	70	13.38	175	13.00	76	13.42	195	13.81	535
9	.....	700	14.09	910	14.22	1100	14.55	1770	13.83	560	13.44	205	13.20	110	12.92	70	13.38	175	13.13	95	13.42	195	13.83	560
10	.....	680	14.13	964	14.22	1100	14.38	1385	13.75	470	13.33	150	13.17	103	13.00	76	13.33	150	13.25	125	13.46	220	13.92	665
11	13.89	630	14.18	1040	14.22	1100	14.38	1385	13.67	392	13.38	175	13.19	107	13.08	85	13.33	150	13.33	150	13.46	220	14.00	780
12	13.72	440	14.22	1100	14.22	1100	14.34	1310	13.75	470	13.33	150	13.20	110	13.08	85	13.29	135	13.29	135	13.42	195	13.83	560
13	13.72	440	14.22	1100	14.13	964	14.30	1233	13.71	430	13.29	135	13.29	135	13.08	85	13.29	135	13.29	135	13.50	245	13.80	524
14	13.72	440	14.22	1100	13.89	630	14.30	1233	13.67	392	13.25	125	13.38	175	13.04	80	13.25	125	13.25	125	13.62	345	13.78	500
15	13.89	630	14.18	1040	14.13	964	14.26	1163	13.67	392	13.33	150	13.38	175	13.04	80	13.21	112	13.25	125	13.58	314	13.78	500
16	14.01	790	14.13	964	14.89	2710	14.22	1100	13.58	314	13.25	125	13.38	175	13.12	93	13.17	103	13.29	135	14.12	960	13.80	524
17	14.05	850	14.09	910	15.47	4600	14.22	1100	13.58	314	13.25	125	13.33	150	13.15	100	13.17	103	13.33	150	14.17	1030	13.80	524
18	14.05	850	14.01	790	15.47	4600	14.13	964	13.54	280	13.25	125	13.27	130	13.17	103	13.15	100	13.33	150	13.92	670	13.84	570
19	14.09	910	14.01	790	15.47	4600	14.22	1100	13.54	280	13.35	160	13.21	112	13.29	135	13.17	103	13.27	130	13.92	670	14.09	910
20	14.14	980	14.05	850	15.38	4260	14.26	1170	13.54	280	13.29	135	13.19	107	13.54	280	13.25	125	13.29	135	13.88	618	14.13	964
21	14.16	1010	14.09	910	15.30	3900	14.26	1170	13.42	195	13.29	135	12.17	103	13.54	280	13.17	103	13.25	125	13.81	535	14.17	1030
22	14.20	1070	14.13	964	15.13	3400	14.22	1100	13.50	245	13.29	135	13.17	103	13.48	235	13.17	103	13.29	135	13.81	535	14.17	1030
23	14.18	1040	14.22	1100	14.92	2790	14.13	964	13.46	220	13.33	150	13.17	103	13.35	160	13.25	125	13.25	125	13.81	535	14.13	964
24	14.22	1100	14.22	1100	14.55	1770	14.05	850	13.50	245	13.42	195	13.13	95	13.29	135	13.21	112	13.25	125	13.83	560	14.13	964
25	14.55	1770	14.26	1160	14.63	1880	13.97	740	13.54	280	13.42	195	13.13	95	13.21	112	13.17	103	13.25	125	14.00	780	14.17	1030
26	14.64	1900	14.26	1160	15.13	3400	13.96	725	13.54	280	13.38	175	13.08	85	13.17	103	13.17	103	13.17	103	14.15	995	14.22	1100
27	14.64	1900	14.05	850	16.55	9240	14.01	795	13.56	295	12.38	175	13.08	85	13.13	95	13.17	103	13.17	103	14.42	1465	14.22	1100
28	14.72	2100	14.05	850	17.05	11380	14.01	795	13.58	314	13.42	195	13.04	80	13.13	95	13.17	103	13.25	125	14.50	1530	14.22	1100
29	15.14	3410	.....	.....	17.05	11380	14.00	780	13.58	314	13.40	185	13.06	82	13.21	112	13.19	107	13.29	135	14.42	1465	14.30	1233
30	15.80	6020	.....	.....	17.63	13830	14.00	780	13.63	355	13.40	185	13.02	78	13.21	112	13.19	107	13.46	220	14.29	1220	14.30	1233
31	15.55	4950	.....	.....	17.63	13830	.....	.....	13.58	314	.....	.....	13.02	78	13.21	112	.....	.....	13.27	130	.....	.....	14.30	1233

Monthly Discharge of Maitland River at Ben Miller for 1911

Drainage Area, 950 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January							
February							
March							
April							
May							
June	570	150	314	.60	.16	.33	.37
July	325	105	165	.34	.11	.17	.20
August	285	105	159	.30	.11	.17	.20
September	355	115	181	.37	.12	.19	.21
October	1,600	285	634	1.68	.30	.67	.76
November	4,425	700	2,455	4.67	.74	2.58	2.88
December	4,950	1,000	2,161	5.21	1.05	2.28	2.63
The period	4,950	105	867	5.21	.11	.91	7.25

Monthly Discharge of Maitland River at Ben Miller for 1912

Drainage Area, 950 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	7,800	1,020	5,500	8.22	1.07	5.80	6.68
February							
March	8,150	2,450	4,040	8.58	2.58	4.25	4.90
April	65,000	740	9,630	68.45	0.78	10.10	11.27
May	12,800	440	3,530	13.47	0.46	3.72	4.29
June	3,700	205	992	3.89	0.22	1.04	1.16
July	480	140	222	0.50	0.15	0.23	.27
August	965	165	392	1.01	0.17	0.41	.47
September	6,750	440	1,732	7.10	0.46	1.82	2.03
October	1,665	620	1,066	1.75	0.65	1.12	1.29
November	10,300	1,230	3,910	10.82	1.29	4.12	4.60
December	7,000	440	1,945	7.37	0.46	2.04	2.35
The period	65,000	140	2,996	68.45	0.15	3.15	39.31

Monthly Discharge of Maitland River at Ben Miller for 1913

Drainage Area, 950 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	12,100	670	4,125	12.72	.70	4.34	5.00
February	4,300	850	1,700	4.52	.89	1.79	1.86
March	34,200	440	6,620	35.95	.46	6.97	8.05
April	14,200	905	4,075	14.94	.95	4.29	4.79
May	785	225	369	.83	.24	.39	.45
June	215	115	162	.23	.12	.17	.19
July	140	85	106	.15	.09	.11	.13
August	195	75	98	.21	.08	.10	.12
September	100	70	86	.11	.07	.09	.10
October	525	70	193	.55	.07	.20	.23
November	6,750	355	1,501	7.11	.37	1.58	1.76
December	1,070	492	764	1.13	.52	.80	.92
The year	34,200	70	1,650	35.95	.07	1.74	23.60

Monthly Discharge of Maitland River at Ben Miller for 1914

Drainage Area, 950 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	6,020	440	1,291	6.34	.463	1.36	1.57
February	4,300	618	1,409	4.52	.651	1.48	1.54
March	13,830	630	3,664	14.56	.664	3.86	4.45
April	9,600	725	2,236	10.11	.763	2.35	2.62
May	895	195	437	.942	.205	.46	.53
June	392	125	196	.413	.132	.21	.23
July	185	78	122	.195	.082	.13	.15
August	280	70	111	.295	.074	.12	.14
September	195	100	133	.205	.105	.14	.16
October	220	76	123	.232	.080	.13	.15
November	1,530	145	562	1.611	.153	.59	.65
December	1,590	500	928	1.675	.527	.98	1.13
The year	13,830	70	932	14.56	.074	.98	13.32

Saugeen River near Port Elgin

Location —At the highway bridge known as McCalder's Bridge, 4 miles north-east of the Town of Pt. Elgin, Township of Saugeen, County of Bruce.

Records Available —Monthly discharge measurements, July, 1911, to July, 1914. Daily gauge heights, April 19 to Dec. 31, 1914.

Drainage Area —1,565 square miles.

Gauge —Two sections of vertical steel staff with enamelled face, graduated in feet and inches. The 0 to 3 feet section is fastened to the upstream side of the centre pier and the 3 to 12 feet section, which records the high stages of the river, is placed on the right abutment. The zero of the gauge (elevation 4.00) is referred to a bench mark on the downstream side of the right abutment.

Channel —Straight for about 500 feet above and 700 feet below the station. Both banks are low, clean and liable to overflow. The bed of the stream is composed of boulders and clay, slightly shifting. The current is moderate and flows through two channels, which are separated by the centre pier of the bridge.

Discharge Measurements —Made from the highway bridge with a large Price current meter.

Control —The operation of numerous small dams located above the station cause fluctuation in the river, due to the intermittent operation of the mills.

Winter Flow —During the winter months the river is covered with ice, and measurements are made through the ice to determine the winter discharge.

Maximum and Minimum Flow —On April 8, 1912, the high water rose 20 feet above the zero of the present gauge, causing heavy damage along the banks of the river. The discharge recorded on April 12th was 19,436 second-feet at a gauge height of 13.80 feet. The lowest stage recorded was 4.50 feet on Aug. 19, 1913, when the flow was about 361 second-feet.

Accuracy —The large number of discharge measurements made it possible to establish a well-defined rating curve.

Observer —John Shanks, Southampton, Ontario.

Discharge Measurements of Saugeen River near Port Elgin in 1911-2-3-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1911							
July 7....	Roberts, E	197	544	0.90	4.65	490	.....
Aug. 17....	"	197	525	0.76	4.55	399	.....
Sept. 20....	"	197	544	0.92	4.65	506	.....
Oct. 13....	"	197	629	1.09	5.10	691	.....
Nov. 17....	"	197	1154	4.07	7.70	4704	.....
Dec. 20....	"	197	993	1.58	6.90	1473	.....
1912							
Jan. 25....	"		849	2.30	6.20	2308	.....
Feb. 24....	"		672	1.30	5.30	876	.....
Mar. 27....	"		1007	1.91	7.00	1922	.....
Apr. 10 (a)	"		2346	8.30	13.80	19436	.....
Apr. 25....	"		1243	3.25	8.20	4028	.....
May 29....	"		1243	3.49	8.20	4323	.....
June 26....	"		847	1.26	5.70	1066	.....
July 23....	"		847	1.32	5.70	1116	.....
Aug. 25....	"		919	1.62	6.10	1482	.....
Sept. 25....	"		1004	1.95	6.50	1965	.....
Oct. 27....	"		924	1.63	6.10	1502	.....
Nov. 26....	"		1143	2.53	7.20	2883	.....
Dec. 21....	"		1143	2.53	7.20	2881	.....
1913							
Jan. 25....	"		1694	3.70	10.00	6273	.....
Feb. 23....	"		1812	1.50	10.60	2816	.....
Mar. 23 (b)	"		2087	5.07	12.00	10506	.....
Apr. 21....	"		1182	3.28	7.40	3887	.....
May 21....	"		906	1.56	6.00	1416	.....
June 16....	Murray, W. S. .	197	787	1.16	5.28	920	.....
July 15....	"	197	729	0.90	5.10	663	.....
Aug. 19....	"	197	615	0.58	4.50	361	.....
Sept. 23....	"	197	635	0.60	4.60	386	.....
Oct. 27....	"	197	874	1.03	5.75	897	.....
Nov. 24....	"	197	1260	3.46	7.80	3097	.....
Dec. 30....	"	197	602	1.63	5.60	986	.....
1914							
Jan. 27....	"	197	1037	1.48	6.70	1540	.....
Feb. 24....	"	197	1038	0.96	6.80	1001	.....
Mar. 26....	"	194	1557	2.82	8.70	4394	.....
Apr. 28....	"	194	984	1.69	6.40	1660	.....
May 27....	"	197	787	1.27	5.37	984	.....
June 23....	"	197	697	0.94	4.95	659	.....
July 24....	"	195	625	0.72	4.50	450	.....

(a) Gauge height 20.0 feet on April 8, 1912, at peak of flood
(b) Float measurement

Daily Gauge Height and Discharge of Saugeen River near Port Elgin for 1914

Drainage Area 1,565 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	.....	.....	.....	.....	.....	.....	.....	.....	7.00	2,490	5.25	880	5.08	750	4.50	370	4.67	470	4.58	400	4.75	520	6.44	1,890
2	.....	.....	.....	.....	.....	.....	.....	.....	6.83	2,300	5.17	820	5.08	750	4.42	300	4.67	470	4.58	400	4.83	575	6.42	1,860
3	.....	.....	.....	.....	.....	.....	.....	.....	6.67	2,120	5.08	750	5.00	690	4.33	250	4.75	520	4.46	320	4.83	575	6.29	1,750
4	.....	.....	.....	.....	.....	.....	.....	.....	6.42	1,860	5.00	690	5.00	690	4.33	250	4.75	520	4.50	370	4.96	650	6.19	1,650
5	.....	.....	.....	.....	.....	.....	.....	.....	6.42	1,860	5.00	690	4.92	640	4.50	370	4.75	520	4.50	370	4.96	650	6.00	1,480
6	.....	.....	.....	.....	.....	.....	.....	.....	6.42	1,860	5.00	690	4.92	640	4.50	370	4.75	520	4.50	370	4.92	640	5.94	1,430
7	.....	.....	.....	.....	.....	.....	.....	.....	6.17	1,690	5.00	690	4.83	575	4.33	250	4.67	470	4.50	370	4.92	640	5.88	1,380
8	.....	.....	.....	.....	.....	.....	.....	.....	6.17	1,690	5.00	690	4.83	575	4.33	250	4.67	470	4.58	400	4.92	640	5.83	1,330
9	.....	.....	.....	.....	.....	.....	.....	.....	6.00	1,480	5.00	690	4.83	575	4.33	250	4.67	470	4.67	470	4.96	650	5.77	1,280
10	.....	.....	.....	.....	.....	.....	.....	.....	5.92	1,420	5.00	690	4.75	520	4.33	250	4.58	400	4.75	520	4.92	640	5.67	1,220
11	.....	.....	.....	.....	.....	.....	.....	.....	5.93	1,340	5.00	690	4.75	520	4.42	300	4.58	400	4.92	640	4.88	610	5.62	1,170
12	.....	.....	.....	.....	.....	.....	.....	.....	5.75	1,270	5.00	690	4.75	520	4.50	370	4.58	400	5.08	750	4.92	640	5.46	1,050
13	.....	.....	.....	.....	.....	.....	.....	.....	5.67	1,220	5.00	690	4.67	470	4.58	400	4.50	370	5.08	750	5.00	690	5.35	960
14	.....	.....	.....	.....	.....	.....	.....	.....	5.58	1,130	5.00	690	4.67	470	4.50	370	4.50	370	5.08	750	5.21	850	5.21	850
15	.....	.....	.....	.....	.....	.....	.....	.....	5.67	1,220	4.92	640	4.67	470	4.50	370	4.58	400	4.92	640	5.58	1,130	5.00	690
16	.....	.....	.....	.....	.....	.....	.....	.....	5.67	1,220	4.92	640	4.95	520	4.67	470	4.58	400	4.92	640	5.92	1,420	4.88	610
17	.....	.....	.....	.....	11.33	8,910	.....	.....	5.67	1,220	4.83	580	4.83	575	4.75	520	4.58	400	4.83	575	6.17	1,690	4.83	575
18	.....	.....	.....	.....	11.00	8,350	.....	.....	5.67	1,220	4.83	580	4.83	575	4.75	520	4.50	370	4.75	520	6.00	1,480	4.71	500
19	.....	.....	.....	.....	9.79	6,250	7.08	2,580	5.58	1,130	4.75	520	4.58	400	4.75	520	4.50	370	4.67	470	5.79	1,300	4.69	480
20	.....	.....	.....	.....	9.12	5,240	7.25	2,770	5.42	1,010	4.67	470	4.58	400	4.83	575	4.42	300	4.67	470	5.58	1,180	.....	460
21	.....	.....	.....	.....	8.83	4,860	7.42	2,960	5.33	950	4.83	580	4.50	370	5.08	750	4.42	300	4.67	470	5.83	1,370	.....	460
22	.....	.....	.....	.....	.....	.....	7.42	2,960	5.25	880	4.92	640	4.50	370	5.17	820	4.33	250	4.75	520	5.62	1,170	.....	460
23	.....	.....	.....	.....	.....	.....	7.00	2,490	5.33	950	5.00	690	4.58	400	5.33	950	4.33	250	4.75	520	5.08	750	.....	460
24	.....	.....	.....	.....	.....	.....	6.83	2,300	5.33	950	5.00	690	4.67	470	5.17	820	4.42	300	4.75	520	5.21	850	.....	460
25	.....	.....	.....	.....	.....	.....	6.67	2,120	5.33	950	5.00	690	4.67	470	5.08	750	4.50	370	4.75	520	6.00	1,480	.....	650
26	.....	.....	.....	.....	.....	.....	6.50	1,940	5.33	950	5.00	690	4.67	470	5.00	690	4.50	370	4.75	520	6.92	2,400	.....	850
27	.....	.....	.....	.....	.....	.....	6.42	1,860	5.33	950	4.92	640	4.58	400	4.83	575	4.50	370	4.67	470	7.44	2,990	5.60	1,150
28	.....	.....	.....	.....	.....	.....	6.33	1,800	5.33	950	5.17	820	4.58	400	4.75	520	4.50	370	4.67	470	7.12	2,620	5.58	1,135
29	.....	.....	.....	.....	.....	.....	6.42	1,860	5.25	880	5.17	820	4.58	400	4.75	520	4.58	400	4.67	470	6.67	2,120	4.54	1,110
30	.....	.....	.....	.....	.....	.....	6.83	2,300	5.17	820	5.08	750	4.50	370	4.75	520	4.58	400	4.67	470	6.62	2,070	5.56	1,120
31	.....	.....	.....	.....	.....	.....	.....	.....	5.33	950	.....	.....	4.50	370	4.67	470	.....	.....	4.75	520	.....	.....	5.60	1,150

Monthly Discharge of Saugeen River near Port Elgin for 1914

Drainage Area, 1,565 Square Miles.

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January							
February							
March							
April							
May	2,490	820	1,320	1.59	.52	.84	.97
June	880	470	683	.56	.30	.44	.49
July	750	370	510	.48	.24	.33	.38
August	950	250	474	.61	.16	.30	.35
September	520	250	400	.33	.16	.26	.29
October	750	320	505	.48	.20	.32	.37
November	2,990	520	1,166	1.91	.33	.74	.82
December	1,890	460	1,020	1.21	.29	.65	.75
The period	2,490	250	760	1.59	.16	.49	4.42

NOTE—December records are approximate, as gauge readings from December 12th to 31st are unreliable due to ice damaging the gauge.

Saugeen River near Walkerton

Location—At the highway bridge, 3½ miles above the Town of Walkerton, Township of Brant, County of Bruce.

Records Available—Monthly discharge measurements, June, 1912, to July, 1914. Daily gauge heights, March 26 to Dec. 31, 1914.

Drainage Area—895 square miles.

Gauge—Vertical steel staff with enamelled face, graduated in feet and inches, and fastened to a post driven into the bed of the channel, and connected to a tree overhanging from the left shore, 100 feet upstream from the bridge. The zero on the gauge (elevation 12.00) is referred to a bench mark (elevation 31.46) painted B. M. on a large boulder, 308.6 feet to the right of the right abutment.

Channel—Straight for about 700 feet above and 500 feet below the station. Both banks are fairly high, clean and will not overflow, except at extreme stages. The bed of the stream is composed of clay, and one channel exists at all stages. The current is slow.

Discharge Measurements—Made from highway bridge with a large Price current meter.

Control—A dam is located in the Town of Walkerton, about 3½ miles below the station, but on account of the fall between the two points, it has no influence on the cross-section.

Winter Flow—The river is covered with ice during the winter months, and measurements are made through the ice to determine the winter discharge.

Accuracy—A well-defined rating curve has been established.

Observer—Henry Russwurm, Walkerton, Ont.

Discharge Measurements of Saugeen River near Walkerton in 1912-3-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1912							
June 26....	Roberts. E	135	531	1.28	15.65	679	.....
July 23....	"	.....	548	1.34	15.80	734	.....
Aug. 23....	"	.....	572	1.41	16.00	805	.....
Sept. 26....	"	.....	572	1.42	16.00	812	.....
Oct. 25....	"	.....	572	1.42	16.00	814	.....
Nov. 25....	"	.....	699	2.14	17.00	1492	.....
Dec. 21....	"	.....	674	1.91	16.80	1287	.....
1913							
Jan. 24....	"	.....	1128	4.16	20.25	4691	.....
Feb. 21....	"	135	732	2.34	17.25	1720	.....
Mar. 22 (a)	"	.....	1668	5.29	24.25	8836	.....
April 22....	"	.....	732	2.35	17.25	1724	.....
May 20....	"	.....	612	1.46	16.10	897	.....
June 17....	Murray, W. S...	128	573	0.84	15.65	483	.....
July 16....	"	135	491	0.59	15.20	294	.....
Aug. 20....	"	135	449	0.55	15.00	251	.....
Sept. 24....	"	135	483	0.79	15.20	347	.....
Oct. 28....	"	135	509	1.11	15.70	563	.....
Nov. 25....	"	135	716	1.70	17.00	1219	.....
Dec. 29....	"	135	524	0.74	15.60	391	.....
1914							
Jan. 26....	"	135	560	1.41	16.20	790	.....
Feb. 23....	"	135	525	1.01	15.80	531	.....
Mar. 20....	"	155	787	2.66	17.50	2098	.....
April 27....	"	130	627	1.68	16.41	1056	.....
May 26....	"	135	488	1.10	15.33	537	.....
June 22....	"	130	440	0.81	15.08	357	.....
July 27....	"	132	440	0.46	14.95	207	.....

(a) Float measurement

Daily Gauge Height and Discharge of Saugeen River near Walkerton for 1914

Drainage Area, 895 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	.....	.....	.....	.....	.....	.....	23.00	7525	16.82	1360	15.25	388	15.00	267	14.92	230	15.00	267	14.92	230	15.17	350	17.17	1670
2	.....	.....	.....	.....	.....	.....	.....	.....	16.67	1230	15.08	307	15.25	388	14.92	230	15.00	267	14.92	230	15.17	350	17.08	1602
3	.....	.....	.....	.....	.....	.....	.....	.....	16.42	1060	15.17	350	15.08	307	14.92	230	15.08	307	14.92	230	15.25	388	17.00	1545
4	.....	.....	.....	.....	.....	.....	.....	.....	16.25	925	15.08	307	15.16	350	14.92	230	15.08	307	14.92	230	15.25	388	16.67	550
5	.....	.....	.....	.....	.....	.....	.....	.....	16.42	1060	15.00	267	15.08	307	14.92	230	15.08	307	14.92	230	15.17	350	16.50	1165
6	.....	.....	.....	.....	.....	.....	.....	.....	16.25	925	15.08	307	15.08	307	14.92	230	15.00	267	14.83	190	15.17	350	15.83	660
7	.....	.....	.....	.....	.....	.....	.....	.....	16.17	870	15.00	267	15.08	307	14.92	230	15.17	350	14.83	190	15.08	307	15.50	520
8	.....	.....	.....	.....	.....	.....	.....	.....	16.17	870	15.08	307	15.00	267	14.83	190	15.08	307	14.83	190	15.25	388	15.67	550
9	.....	.....	.....	.....	.....	.....	.....	.....	16.17	870	15.17	350	15.00	267	14.83	190	15.08	307	15.00	267	15.25	388	15.33	430
10	.....	.....	.....	.....	.....	.....	.....	.....	15.92	710	15.08	307	15.00	267	14.92	230	15.00	267	15.08	307	15.17	350	15.33	430
11	.....	.....	.....	.....	.....	.....	.....	.....	15.83	660	15.00	267	15.00	267	15.00	267	15.00	267	15.08	307	15.17	350	15.50	520
12	.....	.....	.....	.....	.....	.....	.....	.....	15.83	660	15.00	267	14.92	230	15.00	267	14.92	230	15.17	350	15.17	350	15.42	475
13	.....	.....	.....	.....	.....	.....	.....	.....	15.75	600	15.00	267	14.83	190	15.00	267	14.92	230	15.25	390	15.33	430	15.42	475
14	.....	.....	.....	.....	.....	.....	.....	.....	15.67	550	15.17	350	14.83	190	15.00	267	14.92	230	15.17	350	15.50	520	15.33	430
15	.....	.....	.....	.....	.....	.....	.....	.....	15.58	565	15.00	267	14.83	190	15.00	267	14.83	190	15.08	307	15.50	520	15.33	430
16	.....	.....	.....	.....	.....	.....	.....	.....	15.42	475	15.00	267	15.00	267	15.00	267	14.83	190	15.08	307	15.92	710	15.33	430
17	.....	.....	.....	.....	.....	.....	17.16	1620	15.42	475	15.00	267	15.08	307	15.00	267	14.83	190	15.08	307	16.33	1040	15.50	520
18	.....	.....	.....	.....	.....	.....	17.16	1620	15.42	475	15.00	267	15.08	307	15.08	307	14.75	155	15.17	350	16.17	870	15.75	600
19	.....	.....	.....	.....	.....	.....	17.33	1780	15.33	430	15.08	307	14.92	230	15.08	307	14.67	120	15.17	350	15.92	710	15.75	600
20	.....	.....	.....	.....	.....	.....	17.58	1950	15.25	388	15.17	350	15.00	267	15.08	307	14.50	50	15.17	350	15.92	710	15.75	600
21	.....	.....	.....	.....	.....	.....	17.67	2050	15.25	388	15.08	307	15.08	307	15.58	565	14.83	190	15.08	307	15.67	550	15.75	600
22	.....	.....	.....	.....	.....	.....	17.33	1780	15.25	388	15.17	350	15.08	307	15.42	475	14.83	190	15.00	267	15.50	520	15.75	600
23	.....	.....	.....	.....	.....	.....	17.00	1550	15.25	388	15.08	307	15.08	307	15.33	430	14.83	190	15.00	267	15.50	520	15.67	550
24	.....	.....	.....	.....	.....	.....	16.83	1370	15.25	388	15.08	307	15.00	267	15.33	430	14.92	230	15.08	307	15.42	475	15.42	475
25	.....	.....	.....	.....	.....	.....	16.58	1180	15.25	388	15.08	307	15.00	267	15.17	350	14.92	230	15.08	307	15.75	600	15.42	475
26	.....	.....	.....	.....	18.00	2400	16.42	1060	15.33	430	15.08	307	14.92	230	15.00	267	14.75	155	15.08	307	16.00	810	15.42	475
27	.....	.....	.....	.....	19.75	4175	16.42	1060	15.25	388	15.00	267	14.83	190	15.00	267	14.50	50	15.00	267	16.50	1165	15.58	565
28	.....	.....	.....	.....	21.50	6000	16.50	1110	15.25	388	15.08	307	15.00	267	15.00	267	14.75	155	15.08	307	16.42	1060	15.58	565
29	.....	.....	.....	.....	22.29	6800	16.67	1240	15.17	350	15.17	350	14.92	230	14.92	230	14.83	190	15.17	350	16.42	1060	15.75	600
30	.....	.....	.....	.....	22.83	7360	17.60	1480	15.25	388	15.17	350	14.92	230	14.83	190	14.92	230	15.17	350	16.67	1240	15.75	600
31	.....	.....	.....	.....	23.87	8450	.....	.....	15.33	430	.....	.....	14.92	230	15.00	267			15.17	350			15.67	550

Monthly Discharge of Saugeen River near Walkerton for 1914

Drainage Area, 895 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January							
February							
March							
April							
May	1,360	350	628	1.52	.39	.70	.81
June	388	267	306	.43	.30	.34	.38
July	388	190	268	.43	.21	.29	.33
August	565	190	282	.56	.21	.31	.37
September	350	50	220	.39	.06	.24	.27
October	390	190	292	.43	.21	.32	.37
November	1,240	307	594	1.39	.34	.66	.73
December	1,670	430	653	1.87	.48	.73	.84
The period	1,670	50	406	1.87	.06	.44	4.10

Teeswater River at Paisley

Location —At the main highway bridge, in the Village of Paisley, 200 feet above the confluence of the Saugeen with Teeswater River, Township of Elderslie, County of Bruce.

Records Available —Monthly discharge measurements, Oct., 1912, to July, 1914.

Drainage Area —227 square miles.

Gauge —Vertical steel staff gauge with enamelled face, graduated in feet and inches, and attached to a post in the tail race of Fisher's Mill at the bridge. The zero on the gauge (elevation 16.00) is referred to a bench mark (elevation 28.30) painted on top of concrete wall of the Grist Mill flume line, on the right bank, 150 feet from the bridge. Another bench mark (elevation 40.65) is painted on the step of the woolen mill on the right bank, 14 feet below the bridge.

Channel —Straight for about 700 feet above and 200 feet below the station, where the stream joins with the Saugeen River. The banks are high, sodded, and will not overflow. The bed of the river is composed of clay and gravel, slightly shifting. The current is fast, and flows through one chanuel.

Discharge Measurements —Made from the highway bridge with a large Price current meter.

Control —The intermittent operations of a mill 300 feet above the station causes fluctuations at the gauge.

Winter Flow —During the winter months the river is partly covered with ice, and measurements are made to determine the winter discharge. The relation of gauge height to discharge is affected by ice.

Discharge Measurements of Teeswater River at Paisley in 1912-3-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1912							
Oct. 26....	Roberts, F.	.....	160	1.55	18.00	248	1.93
Nov. 26....	"	.....	314	2.11	18.93	662	2.92
Dec. 21....	"	.....	269	2.47	18.93	665	2.93
1913							
Jan. 24....	"	117	641	2.82	22.30	1813	7.99
Feb. 22....	"	117	342	2.56	19.70	866	3.82
Mar. 24....	"	117	994	3.40	25.60	3380	14.89
April 22....	"	117	298	2.21	18.90	661	2.92
May 20....	"	117	203	1.30	17.90	266	1.17
June 17 (a)	Murray, W. S.	117	75	1.12	17.10	84	0.37
July 16....	"	117	106	1.83	17.30	194	0.85
Aug. 20 (b)	"	105	65	0.44	16.80	29	0.13
Sept. 24....	"	107	71	1.81	16.80	137	0.60
Oct. 28....	"	109	138	1.92	17.50	266	1.17
Nov. 25....	"	112	315	1.87	19.00	590	2.60
Dec. 30....	"	.....	138	1.10	17.50	252	1.11
1914							
Jan. 27....	"	110	171	1.86	18.20	442	1.95
Feb. 24....	"	110	120	1.87	17.60	238	1.05
Mar. 26....	"	110	418	1.84	20.20	771	3.40
April 28....	"	110	214	1.25	18.30	270	1.19
May 27....	"	110	129	1.24	17.16	161	0.71
June 23....	"	105	68	0.32	16.66	22	0.10
July 28....	"	103	46	0.34	16.33	16	0.07

(a) Backwater from Saugeen River
(b) Mill not running

Credit River at Cataract Junction

Location —About 500 feet opposite the C. P. Ry. station at Cataract Jct., Township of Caledon, County of Peel.

Records Available —Monthly discharge measurements, June, 1912, to Nov., 1914.

Drainage Area —91 square miles.

Gauge —A bench mark gauge (elev. 10.00) painted on the side of a rock in the centre of the river at the section, from which measurements are taken to the surface of the water, by means of a graduated staff.

Channel.—Straight for about 150 feet above and 100 feet below the station. The right bank is low, sodded, and liable to overflow, but the left bank is very high and composed of gravel. The bed consists of gravel and rocks, slightly shifting. The current is swift, flowing through one channel at all stages.

Discharge Measurements —Made by wading with a Price current meter.

Control —A dam ½ mile below the station, operated by the Deagle Power Plant at Cataract Falls, does not affect the section on account of the heavy fall in the river bed between the two points.

Winter Flow —The river remains open at the station as well as in a number of other places during the winter months.

Discharge Measurements of Credit River at Cataract Junction in 1912-3-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1912							
June 24....	Roberts, E.	....	38	1.38	10.15	52	.57
July 22....	"	....	42	1.59	10.30	67	.73
Aug. 29 (a)	"	....	43	1.77	10.30	76	.84
Sept. 30....	"	....	51	1.92	10.50	98	1.07
Oct. 31....	"	....	47	1.91	10.40	90	.99
Nov. 23....	"	....	51	1.90	10.50	97	1.06
Dec. 30....	"	....	48	1.79	10.40	86	.94
1913							
Jan. 30....	"	....	87	2.30	11.10	200	2.19
Feb. 28....	"	....	47	1.79	10.04	84	.92
Mar. 29....	"	....	110	2.09	11.50	230	2.52
Apr. 30....	"	....	67	2.55	10.80	171	1.87
May 26....	Murray, W. S.	....	57	1.89	10.60	108	1.18
June 25....	"	....	37	1.41	10.20	53	.58
July 25....	"	....	34	1.25	10.10	41	.45
Aug. 31....	"	....	34	1.02	10.10	35	.38
Oct. 3....	"	....	37	1.10	10.20	42	.46
Nov. 6 (b)	"	....	41	0.94	10.30	39	.43
Dec. 3 (b)	"	....	48	0.77	10.50	37	.40
Dec. 31 (b)	"	....	60	1.51	10.70	91	.99
1914							
Feb. 3 (b)	"	....	155	1.64	13.60	256	2.80
Mar. 4 (b)	"	....	46	1.45	10.80	68	.74
Apr. 24 (c)	"	....	112	0.49	8.80	55	.60
May 22....	"	....	38	0.76	8.58	29	.32
July 3....	"	45	31	0.90	8.50	28	.31
July 31....	"	45	33	0.96	8.60	32	.35
Aug. 28....	"	44	28	0.60	8.50	17	.19
Oct. 2....	"	44	29	0.80	8.50	24	.26
Nov. 1....	"	45	31	1.09	8.55	34	.37

(a) Water rose during time of measurement
(b) Backwater due to construction of dam
(c) New section established

Nottawasaga River near Nicolston

Location—At the highway bridge known at McLean's Bridge, 4 miles north of the Town of Nicolston, Township of Essa, County of Simcoe.

Records Available—Monthly discharge measurements, June, 1912, to Oct., 1914. Daily gauge heights, Aug. 18 to Dec. 31, 1914.

Drainage Area—325 square miles.

Gauge—Vertical steel staff with enamelled face, graduated in feet and inches, and fastened on the upstream side of the right abutment. The zero of the gauge (elevation 4.17) is referred to a bench mark (elevation 23.51) painted on a square tree stump on the left bank, 250 feet to the left of the upstream side of the abutment.

Channel—Straight for about 500 feet below the station. Commencing at a point about 200 feet above the section the river curves continuously to the left until it reaches the station, where the river makes an angle of about 68 degrees with the cross-section. Both banks consist of clay and sand, fairly high, wooded, and not liable to overflow. The bed of the stream is composed of clay and sand. The current is fairly fast.

Discharge Measurements—Made at the highway bridge with a large Price current meter.

Control—A mill dam, located 2½ miles upstream, affects the gauge heights due to the intermittent operation of the mill.

Winter Flow.—The river is covered with ice during the winter months, and measurements are made through the ice to determine the winter discharge.

Accuracy.—The angle which the current makes at the gauging station necessitates a correction. A well-defined rating curve has been established.

Observer—John Scott, Egbert P.O., Ontario.

Discharge Measurements of Nottawasaga River near Nicolston in 1912-3-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1912							
June 11....	Roberts, E	.....	347	1.23	7.00	426	.....
July 6....	"	.....	235	0.84	5.60	197	.....
Aug. 9....	"	.....	233	0.82	5.60	190	.....
Sept. 13....	"	.....	240	0.65	5.54	156	.....
Oct. 13....	"	.....	311	0.84	6.42	260	.....
Nov. 15....	"	.....	721	2.19	11.02	1,580	.....
Dec. 13....	"	.....	337	1.04	6.72	352	.....
1913							
Jan. 15....	"	85	361	1.33	7.02	481	.....
Feb. 13....	"	85	278	0.86	6.02	241	.....
Mar. 16....	"	90	1,260	1.91	17.02	2416	.....
April 12....	"	90	620	1.61	10.02	1261	.....
May 10....	"	85	294	1.20	6.22	355	.....
June 11....	Murray, W. S....	80	253	0.88	5.70	223	.....
July 9....	"	85	238	0.58	5.50	139	.....
Aug. 13....	"	85	222	0.34	5.30	89	.....
Sept. 12....	"	85	238	0.54	5.50	131	.....
Oct. 22....	"	85	281	0.75	6.00	209	.....
Nov. 20....	"	85	418	1.21	7.60	506	.....
Dec. 15....	"	85	333	1.04	6.70	346	.....
1914							
Jan 16 (a)	"	85	246	0.52	5.50	129	.....
Feb. 15 (a	"	85	318	1.03	6.50	328	.....
Mar. 14 (a)	"	85	357	1.03	6.60	367	.....
April 8....	"	85	434	1.58	7.75	688	.....
May 14....	"	85	372	0.97	6.67	361	.....
June 18....	"	85	230	0.57	5.00	130	.....
July 16....	"	85	238	0.64	5.50	154	.....
Aug. 18....	"	85	260	0.63	5.38	165	.....
Oct. 13....	"	85	293	0.83	6.25	241	.....

(a) Ice measurement

Daily Gauge Height and Discharge of Nottawasaga River near Nicolston for 1914

Drainage Area, 325 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1																	5.59	132	5.63	137	5.92	178	6.63	292
2																	6.59	285	5.25	88	6.05	199	6.98	352
3																	6.25	230	5.30	94	6.00	190	7.13	382
4																	5.84	166	5.25	88	5.98	187	6.88	335
5																	5.71	147	5.51	121	6.09	204	6.46	263
6																	5.63	137	5.55	127	6.05	199	6.13	210
7																	5.59	132	5.67	140	6.09	204	6.09	204
8																	5.63	137	5.67	140	6.00	190	5.86	169
9																	5.63	137	5.88	171	6.13	210	6.21	222
10																	5.55	127	6.13	210	5.94	180	6.09	204
11																	5.44	111	6.75	312	6.09	204	5.98	187
12																	5.61	133	6.13	210	6.05	199	6.05	199
13																	5.34	99	6.25	230	6.40	252	5.82	178
14																	5.50	120	5.88	171	6.88	335	6.05	199
15																	5.48	117	5.75	153	6.50	269	5.92	178
16																	5.42	109	5.92	178	7.23	403	6.03	210
17																	5.40	106	6.00	190	7.50	465	5.84	166
18															5.55	127	5.38	103	6.42	255	6.46	263	5.88	171
19															5.57	130	5.25	88	6.23	226	6.67	300	6.00	190
20															5.59	132	5.30	94	6.17	215	6.09	204	5.63	137
21															5.79	159	5.25	88	6.00	190	5.84	166	6.00	190
22															6.13	210	5.42	109	5.96	183	5.92	178	5.84	166
23															5.75	153	5.42	109	5.96	183	6.34	243	6.09	204
24															5.54	125	5.57	130	5.92	178	6.09	204	5.88	171
25															5.50	120	5.59	132	5.84	166	6.05	213	5.75	153
26															5.25	88	5.38	103	5.96	183	6.38	250	6.34	243
27															5.38	103	5.38	103	5.92	178	6.61	288	5.84	166
28															5.50	120	5.42	109	5.84	166	7.09	374	5.96	183
29															5.34	99	5.63	137	5.86	169	6.17	215	6.21	222
30															5.59	132	5.55	127	6.00	190	6.67	300	6.09	204
31															5.80	161			6.05	199			6.09	204

Monthly Discharge of Nottawasaga River near Nicolston for 1914

Drainage Area 325 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January							
February							
March							
April							
May							
June							
July							
August							
September	285	88	129	.88	.27	.397	.45
October	312	88	176	.96	.27	.542	.62
November	465	166	242	1.43	.51	.745	.82
December	382	137	211	1.18	.42	.649	.75
The period	465	88	189	1.43	.27	.582	2.64

Beaver River near Kimberley

Location—At the concrete highway bridge known as Weber's Bridge, 2 miles southeast of Kimberley, Township of Euphrasia, County of Grey.

Records Available—Monthly discharge measurements, Sept. to Dec., 1914. Gauge heights read at the tailwater gauge of the Eugenia Falls Power Plant, about 2 miles above the station.

Drainage Area—105 square miles.

Gauge—A bench mark gauge (elevation 10.00) painted on the top of right abutment, on the downstream side. Measurements are made to the surface of the water by means of a graduated staff. A staff gauge will be installed in January, 1915, and a gauge recorder employed.

Channel—Straight for about 500 feet above and 100 feet below the station. The banks are low, wooded, and liable to overflow at high stages. The bed of the stream is composed of sand and gravel, and is shifting. The current is moderate and flows through two channels, which join about 5 miles below the station.

Discharge Measurements—Made from the bridge with a large Price current meter.

Winter Flow—During the winter months the river is covered with ice, and measurements are made through the ice to determine the winter discharge.

Accuracy—The few measurements that have been taken at low flows since establishment of the station give a well-defined rating curve.

Discharge Measurements of Beaver River near Kimberley in 1914

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1914							
Sept. 3....	Murray, W. S..	34.5	38	1.45	4.15	55	.53
" 24....	"	34.5	36	1.34	4.10	48	.46
Oct. 21....	"	34.0	38	1.55	4.20	61	.59
Nov. 5....	"	34.0	52	1.63	4.40	85	.81

Discharge Measurements of Beaver River near Thornbury and Clarksburg (a) in 1912-3

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1912							
Aug.....	Roberts, E	.....	69	3.39	.....	234	1.02
Sept.....	"	.....	64	3.37	.....	216	.94
Oct	"	.....	66	3.40	.....	225	.98
Nov.....	"	.....	174	5.55	.....	966	4.22
Dec.....	"	.....	125	5.23	.....	404	1.76
1913							
Jan	"	.....	151	5.34	.....	807	3.53
Feb. 27....	"	.....	157	3.10	.....	487	2.12
Mar. 31....	"	.....	534	5.91	.....	3160	13.80
April 29....	"	.....	280	3.11	.....	873	3.81
May 27....	"	65	165	2.00	.....	346	1.51
June 27....	Murray, W. S...	38	41	4.10	.....	171	.75
July 29....	"	40	26	3.68	5.40	94	.41
Aug. 31....	"	36	20	3.83	5.30	78	.34
Oct. 13....	"	38	52	1.34	5.60	69	.30
Nov. 10....	"	68	69	1.73	6.60	120	.52
Dec. 5....	"	80	156	2.36	6.70	368	1.61
1914							
Jan. 6....	"	90	259	1.63	5.80	433	1.89
Feb. 5....	"	80	259	1.66	7.20	429	1.87
Mar. 6....	"	80	244	1.51	6.70	370	1.61
Mar. 31....	"	80	411	4.93	9.00	2030	8.86
May 5....	"	80	275	1.72	7.67	537	2.34
June 2....	"	80	225	0.73	6.71	166	.72
July 6....	"	37	48	2.18	6.25	105	.46

(a) This station discontinued on account of backwater caused by dam at Thornbury.

Daily Gauge Height and Discharge of Beaver River at Eugenia for 1910

Drainage Area 74 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.
1														45		34		28		23		38		40
2														43		41		24		23		56		39
3														42		33		26		24		52		42
4														40		38		27		29		49		42
5														40		41		30		30		44		35
6														41		35		38		40		42		36
7														41		34		36		39		39		29
8														40		34		32		38		39		32
9														39		41		31		35		39		36
10														38		47		29		35		45		36
11														41		50		28		30		47		35
12														44		35		27		30		60		36
13														54		38		29		28		42		32
14												75		45		34		30		28		41		28
15												68		39		33		29		28		37		27
16												63		55		31		23		27		37		27
17												59		57		31		26		27		35		00
18												57		47		32		26		27		42		36
19												55		42		34		27		27		47		30
20												52		41		34		26		28		45		38
21												50		42		30		26		28		34		35
22												47		38		31		29		30		46		38
23												49		37		31		25		30		46		34
24												51		36		31		27		30		44		36
25												49		37		31		27		29		44		38
26												46		36		35		26		28		46		39
27												48		36		34		29		40		43		39
28												48		37		30		27		42		39		35
29												47		37		29		26		47		42		31
30												46		36		29		26		35		44		29
31														38		28				35				35

Daily Gauge Height and Discharge of Beaver River at Eugenia for 1911

Drainage Area, 74 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	.....	35	.....	50	.....	54	.....	160	.....	161	.....	53	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
2	.....	39	.....	49	.....	50	.....	153	.....	165	.....	53	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3	.....	40	.....	49	.....	48	.....	151	.....	157	.....	51	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
4	.....	42	.....	48	.....	51	.....	161	.....	144	.....	49	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5	.....	42	.....	50	.....	51	.....	199	.....	132	.....	50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
6	.....	41	.....	42	.....	48	.....	205	.....	125	.....	50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
7	.....	41	.....	43	.....	49	.....	215	.....	116	.....	48	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
8	.....	42	.....	45	.....	43	.....	215	.....	111	.....	47	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
9	.....	38	.....	45	.....	47	.....	217	.....	103	.....	46	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
10	.....	42	.....	47	.....	53	.....	232	.....	97	.....	45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
11	.....	42	.....	46	.....	54	.....	258	.....	93	.....	60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
12	.....	43	.....	47	.....	63	.....	302	.....	89	.....	63	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
13	.....	44	.....	44	.....	66	.....	346	.....	83	.....	66	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
14	.....	44	.....	47	.....	81	.....	430	.....	80	.....	65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
15	.....	45	.....	46	.....	78	.....	529	.....	76	.....	57	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
16	.....	42	.....	45	.....	71	.....	469	.....	78	.....	52	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
17	.....	42	.....	50	.....	88	.....	367	.....	87	.....	49	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
18	.....	41	.....	51	.....	78	.....	319	.....	89	.....	45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
19	.....	42	.....	52	.....	73	.....	292	.....	86	.....	43	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
20	.....	42	.....	53	.....	72	.....	282	.....	75	.....	39	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
21	.....	43	.....	54	.....	70	.....	267	.....	74	.....	37	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
22	.....	42	.....	48	.....	73	.....	250	.....	70	.....	37	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
23	.....	38	.....	50	.....	87	.....	234	.....	72	.....	36	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
24	.....	45	.....	50	.....	73	.....	217	.....	72	.....	36	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
25	.....	45	.....	52	.....	86	.....	200	.....	67	.....	35	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
26	.....	47	.....	53	.....	97	.....	190	.....	66	.....	35	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
27	.....	48	.....	53	.....	137	.....	181	.....	61	.....	40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
28	.....	49	.....	50	.....	178	.....	173	.....	59	.....	36	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
29	.....	51	.....	.....	.....	190	.....	168	.....	56	.....	34	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30	.....	48	.....	.....	.....	181	.....	160	.....	52	.....	32	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
31	.....	48	.....	.....	.....	174	.....	.....	.....	53	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Daily Gauge Height and Discharge of Beaver River at Eugenia for 1913

Drainage Area, 74 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec ft.*	*Feet*	*Sec-ft.*
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.605	72	2.435	51	2.305	36	2.255	30	2.25	30	2.26	31	2.395	46
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.595	71	2.420	49	2.295	35	2.255	30	2.21	27	2.255	30	2.43	50
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.585	70	2.415	48	2.290	34	2.255	30	2.22	27	2.25	30	2.44	52
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.575	69	2.430	50	2.295	35	2.245	29	2.225	27	2.29	34	2.39	45
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.565	67	2.480	57	2.295	35	2.240	29	2.22	27	2.285	34	2.385	45
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.625	75	2.475	55	2.265	32	2.240	29	2.215	27	2.27	38	2.365	43
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.790	99	2.420	49	2.275	33	2.235	28	2.235	28	2.255	30	2.35	41
8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.765	95	2.400	46	2.245	30	2.250	30	2.215	27	2.26	31	2.39	45
9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.685	83	2.395	46	2.285	34	2.245	29	2.21	27	2.28	33	2.335	39
10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.630	76	2.395	46	2.295	35	2.235	28	2.21	27	2.30	35	2.34	40
11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.605	72	2.380	44	2.300	35	2.225	28	2.22	27	2.295	35	2.33	39
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.580	69	2.405	47	2.285	34	2.225	28	2.23	28	2.29	34	2.34	40
13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.570	68	2.415	48	2.275	33	2.220	27	2.21	27	2.295	35	2.34	40
14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.545	64	2.400	46	2.270	32	2.220	27	2.22	27	2.315	36	2.35	41
15	.....	.....	.....	.....	.....	.....	.....	.....	1.02	100	2.540	64	2.375	44	2.270	32	2.215	27	2.21	27	2.315	36	2.355	41
16	.....	.....	.....	.....	.....	.....	.....	.....	1.03	105	2.535	62	2.365	43	2.260	31	2.225	28	2.215	27	2.305	36	2.355	41
17	.....	.....	.....	.....	.....	.....	.....	.....	1.02	105	2.525	62	2.360	42	2.265	31	2.230	28	2.21	27	2.285	34	2.34	40
18	.....	.....	.....	.....	.....	.....	.....	.....	1.015	105	2.515	61	2.360	42	2.260	31	2.260	31	2.23	28	2.305	36	2.34	40
19	.....	.....	.....	.....	.....	.....	.....	.....	1.01	105	2.535	63	2.355	41	2.245	29	2.245	29	2.26	31	2.465	55	2.34	40
20	.....	.....	.....	.....	.....	.....	.....	.....	.97	90	2.535	63	2.350	41	2.240	29	2.225	28	2.22	27	2.74	88	2.345	40
21	.....	.....	.....	.....	.....	.....	.....	.....	.965	90	2.545	64	2.340	40	2.230	29	2.260	31	2.225	27	2.68	83	2.32	38
22	.....	.....	.....	.....	.....	.....	.....	.....	.995	95	2.520	61	2.335	39	2.265	31	2.240	29	2.265	31	2.61	73	2.31	36
23	.....	.....	.....	.....	.....	.....	.....	.....	.995	95	2.495	58	2.330	39	3.300	35	2.245	29	2.255	30	2.57	68	2.325	38
24	.....	.....	.....	.....	.....	.....	.....	.....	.98	92	2.470	55	2.330	39	2.295	35	2.230	28	2.38	44	2.525	62	2.31	36
25	.....	.....	.....	.....	.....	.....	.....	.....	.955	90	2.465	55	2.325	38	2.265	31	2.225	27	2.38	44	2.495	58	2.315	36
26	.....	.....	.....	.....	.....	.....	.....	.....	.98	95	2.490	58	2.320	38	2.265	31	2.225	27	2.32	38	2.46	55	2.22	27
27	.....	.....	.....	.....	.....	.....	.....	.....	.93	90	2.490	58	2.310	36	2.265	31	2.240	29	2.28	33	2.425	50	2.23	28
28	.....	.....	.....	.....	.....	.....	.....	.....	.915	85	2.470	55	2.315	36	2.255	30	2.230	28	2.295	35	2.395	46	2.29	34
29	.....	.....	.....	.....	.....	.....	.....	.....	.905	81	2.445	52	2.310	37	2.275	33	2.205	25	2.295	35	2.375	44	2.28	33
31	.....	.....	.....	.....	.....	.....	.....	.....	.90	77	2.430	50	2.315	36	2.295	35	2.235	28	2.29	34	2.395	46	2.315	36
30	.....	.....	.....	.....	.....	.....	.....	.....	2.62	*72	.....	.....	2.295	35	2.280	33	.....	.....	2.23	28	.....	.....	2.28	33

*Weir changed to 30.89 feet.

Daily Gauge Height and Discharge of Beaver River at Eugenia for 1914

Drainage Area, 74 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft*
1	2.30	35	3.59	72	3.115	46	3.62	255	3.00	133	2.57	68	2.41	48	2.22	28	2.23	29	2.23	29	2.345	42	2.54	6
2	2.295	35	3.58	71	3.065	43	3.69	270	3.00	133	2.58	69	2.38	44	2.21	27	2.23	29	2.165	23	2.335	41	2.59	71
3	2.30	35	.....	69	3.08	44	3.70	273	2.95	125	2.545	64	2.36	42	2.22	28	2.23	29	2.15	22	2.345	42	2.565	68
4	2.31	36	.....	67	3.09	45	3.63	257	2.90	118	2.52	62	2.37	43	2.22	28	2.22	28	2.15	22	2.31	37	2.52	62
5	2.30	35	3.43*	64	3.10	45	3.42	215	2.875	113	2.48	57	2.32	37	2.215	27	2.21	27	2.11	18	2.28	34	2.475	57
6	2.26	31	3.38	61	3.11	46	3.285	187	2.86	111	2.47	55	2.32	37	2.205	26	2.22	28	2.21	27	2.29	35	2.43	51
7	2.27	32	3.475	67	3.11	46	3.215	175	2.84	108	2.46	53	2.32	37	2.205	26	2.22	28	2.165	23	2.22	28	2.435	51
8	2.275	33	3.44	64	3.11	46	3.215	175	2.80	101	2.46	53	2.30	35	2.19	25	2.21	27	2.15	22	2.20	26	2.42	50
9	2.27	32	3.395	62	3.09	45	3.165	165	2.79	100	2.45	52	2.30	35	2.21	27	2.20	26	2.28	34	2.215	27	2.275	33
0	2.84§	31	3.375	61	3.105	45	3.08	150	2.76	95	2.435	50	2.30	35	2.21	27	2.195	25	2.315	38	2.23	29	2.31	37
1	2.835	31	3.295	56	3.04	42	3.08	150	2.735	91	2.43	50	2.30	‡35	2.21	27	2.21	27	2.365	44	2.21	27	2.355	42
2	2.80	30	3.245	53	3.01	45	3.04	142	2.71	87	2.42	48	2.30	36	2.20	26	2.18	24	2.325	39	2.23	29	2.355	42
3	2.76	28	3.205	51	3.04	42	2.99	136	2.70	86	2.42	48	2.29	35	2.21	27	2.20	26	2.285	35	2.31	37	2.315	37
4	2.725	26	3.205	51	3.08	44	3.015	137	2.69	85	2.405	47	2.29	35	2.29	35	3.19	25	2.255	32	2.23	29	2.29	35
5	2.74	27	3.20	51	3.12	46	3.08	150	2.65	79	2.40	47	2.28	34	2.24	30	2.19	25	2.22	28	2.315	38	2.28	34
6	2.795	27	3.20	51	3.14	48	3.185	168	2.65	79	2.40	48	2.28	34	2.23	29	2.24	30	2.20	26	2.47	56	2.29	35
7	2.82	30	3.20	51	3.45	65	3.245	180	2.62	75	2.40	47	2.28	34	2.25	31	2.20	26	2.235	30	2.495	59	2.30	36
8	2.83	31	3.205	51	3.525	69	3.31	193	2.61	73	2.395	46	2.28	34	2.30	36	2.19	25	2.215	28	2.445	53	2.30	36
9	2.825	31	3.20	51	3.385	61	3.37	205	2.61	73	2.42	48	2.27	33	2.36	43	2.19	25	2.23	29	2.39	46	2.30	36
0	2.82	30	3.19	50	3.29	56	3.48	227	2.61	73	2.42	48	2.27	33	2.39	46	2.18	24	2.255	32	2.355	43	2.31	37
1	2.80	29	3.195	51	3.43	64	3.38	207	2.60	71	2.41	47	2.265	32	2.38	45	2.17	23	2.24	30	2.35	42	2.30	36
2	2.795	29	3.165	48	3.41	63	3.215	185	2.60	71	2.42	48	2.25	31	2.36	43	2.19	25	2.22	28	2.34	40	2.295	35
3	2.81	30	2.975	39	3.375	61	3.00	135	2.60	71	2.42	48	2.255	31	2.36	40	2.19	25	2.205	27	2.29	35	2.27	33
4	2.90	34	3.115	46	3.33	58	3.115	160	2.58	69	2.40	46	2.30	36	2.29	35	2.19	25	2.20	26	2.325	39	2.29	35
5	2.92	35	3.02	41	3.335	58	3.02	138	2.59	70	2.40	46	2.30	36	2.24	30	2.18	24	2.235	30	2.33	39	2.29	35
6	2.89	33	3.005	40	3.60 3.27†	75 175	3.00	133	2.58	69	2.39	45	2.28	34	2.22	28	2.17	23	2.24	30	2.365	44	2.26	32
7	3.005	39	3.075	44	2.955	127	2.98	131	2.57	68	2.39	45	2.28	34	2.22	28	2.185	25	2.35	42	2.45	53	2.275	34
8	3.085	43	3.145	45	3.10	152	2.86	110	2.56	67	2.32	44	2.29	35	2.22	28	2.17	23	2.33	39	2.595	72	2.16	23
9	3.23	51	.....	.....	3.14	160	3.01	136	2.58	62	2.32	44	2.24	30	2.23	29	2.165	23	2.31	37	2.53	63	2.28	34
0	3.48	65	.....	.....	3.33	196	3.02	138	2.52	62	2.37	43	2.24	30	2.235	29	2.165	23	2.385	45	2.475	57	2.29	35
1	3.555	69	.....	.....	3.49	228	.....	.....	2.55	65	.....	.....	2.22	28	2.24	30	.....	.....	2.415	49	.....	.....	2.29	35

§ Weir length reduced to 8.4 feet. *Width of weir changed to 8.6 feet. † Weir lengthened to 29.2 feet. ‡ Weir crest lowered from 1.83 to 1.82 on gauge.

Monthly Discharge of Beaver River at Eugenia for 1910

Drainage Area, 74 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January							
February							
March							
April							
May							
June							
July	58	36	41	.78	.49	.57	.65
August	50	29	34	.68	.39	.47	.54
September	39	26	28	.53	.35	.39	.43
October	48	23	31	.65	.31	.43	.44
November	60	35	44	.81	.47	.60	.69
December	42	27	35	.57	.37	.47	.54
The period	60	23	35	.81	.31	.49	3.29

Monthly Discharge of Beaver River at Eugenia for 1911

Drainage Area, 74 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	51	36	43	.69	.49	.59	.68
February	55	43	49	.74	.58	.66	.69
March	192	44	83	2.59	.59	1.13	1.30
April	534	151	252	7.23	2.04	3.41	3.80
May	166	53	92	2.24	.72	1.25	1.44
June	69	32	46	.93	.43	.63	.71
July							
August							
September							
October							
November							
December							
The period	534	32	94	7.23	.43	1.28	8.62

Monthly Discharge of Beaver River at Eugenia for 1913

Drainage Area, 74 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile.			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	.....	.....	.....	.....	.....	.....	.....
February	.....	.....	.....	.....	.....	.....	.....
March	.....	.....	.....	.....	.....	.....	.....
April	.....	.....	.....	.....	.....	.....	.....
May 14–31	114	72	93	1.54	.97	1.26	.84
June	99	50	66	1.34	.67	.90	1.00
July	57	35	43	.77	.47	.59	.68
August	36	29	32	.49	.39	.44	.51
September	31	25	28	.42	.34	.39	.43
October	44	27	30	.59	.36	.41	.47
November	88	30	44	1.19	.41	.59	.66
December	52	27	39	.70	.36	.53	.61
The period	114	27	44	1.54	.36	.60	5.20

Totals are computed for the period May 14th to Dec. 31st

Monthly Discharge of Beaver River at Eugenia for 1914

Drainage Area, 74 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	69	26	34	.93	.35	.47	.54
February	72	40	54	.97	.54	.74	.77
March	228	42	73	3.08	.57	.99	1.14
April	273	110	176	3.69	1.49	2.38	2.66
May	133	62	86	1.80	.84	1.17	1.35
June	69	43	50	.93	.58	.68	.76
July	48	28	35	.65	.38	.48	.55
August	46	25	31	.62	.34	.42	.48
September	30	23	25	.41	.31	.34	.38
October	49	18	31	.66	.24	.42	.48
November	72	26	41	.97	.35	.56	.62
December	71	23	41	.96	.31	.56	.64
The year	273	18	56	3.69	.24	.77	10.37

Daily Gauge Height and Discharge of Beaver River at Feversham for 1914

Drainage Area, 37 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.
1	.....	.....	.....	.....	1.104	19	1.96	105	1.625	66	1.19	24	1.09	17	.98	10	1.00	12	.92	8	1.00	12	1.31	35
2	.....	.....	.....	.....	1.08	17	2.00	110	1.53	56	1.19	24	1.10	18	1.08	17	1.00	12	.92	8	.96	10	1.30	34
3	.....	.....	.....	.....	1.125	20	1.92	100	1.49	52	1.19	24	1.08	17	1.00	12	1.00	12	.92	8	.96	10	1.23	28
4	.....	.....	.....	.....	1.104	19	1.81	87	1.45	48	1.19	24	1.08	17	1.00	12	1.05	15	1.00	12	.92	8	1.22	27
5	.....	.....	.....	.....	1.125	20	1.73	77	1.44	47	1.19	24	1.08	17	1.00	12	1.01	12	1.10	18	1.04	14	1.21	26
6	.....	.....	.....	.....	1.115	20	1.69	73	1.42	45	1.19	24	1.08	17	.92	8	1.00	12	1.10	18	1.02	13	1.12	20
7	.....	.....	.....	.....	1.115	20	1.69	73	1.40	43	1.17	23	1.08	17	1.00	12	.88	6	1.00	12	.91	7	1.10	18
8	.....	.....	.....	.....	1.08	17	1.625	66	1.39	42	1.17	23	1.07	16	1.00	12	.86	5	1.13	20	.96	10	1.12	20
9	.....	.....	.....	.....	1.11	19	1.58	61	1.35	38	1.17	23	1.06	15	1.00	12	.85	5	1.08	17	1.03	14	1.10	18
10	.....	.....	.....	.....	1.12	20	1.53	56	1.35	38	1.17	23	1.06	15	1.00	12	.88	6	1.10	18	1.00	12	1.08	17
11	.....	.....	.....	.....	1.06	16	1.52	55	1.35	38	1.16	22	1.04	14	1.04	14	.94	9	1.10	18	1.00	12	1.09	17
12	.....	.....	.....	.....	1.15	20	1.53	56	1.33	36	1.16	22	1.03	14	1.12	20	.92	8	1.06	15	1.01	12	1.14	21
13	.....	.....	.....	.....	1.12	20	1.505	53	1.31	35	1.16	22	1.04	14	1.03	14	.96	10	1.01	12	1.02	13	1.02	13
14	.....	.....	.....	.....	1.12	20	1.562	59	1.30	34	1.13	20	1.06	15	1.08	17	.96	10	1.00	12	1.12	20	1.01	12
15	.....	.....	.....	.....	1.08	17	1.625	66	1.28	32	1.13	20	1.03	14	1.07	16	.89	6	1.00	12	1.10	18	1.09	17
16	.....	.....	.....	.....	1.15	22	1.68	72	1.28	32	1.13	20	1.03	14	1.04	14	.85	5	1.04	14	1.26	30	1.21	26
17	.....	.....	.....	.....	1.21	26	1.71	75	1.27	31	1.13	20	1.02	13	1.07	16	.85	5	.94	9	1.19	24	1.26	30
18	.....	.....	.....	.....	1.24	29	1.76	81	1.26	30	1.11	19	1.03	14	1.12	20	.85	5	.98	10	1.14	21	1.30	34
19	.....	.....	.....	.....	1.21	26	1.844	91	1.26	30	1.10	18	1.02	13	1.14	21	.89	6	.91	7	1.14	21	1.23	28
20	.....	.....	.....	.....	1.17	23	1.92	100	1.28	31	1.10	18	1.02	13	1.15	22	.95	9	1.02	13	1.05	10	1.10	18
21	.....	.....	.....	.....	1.17	23	1.77	82	1.24	28	1.11	19	1.02	13	1.08	17	.98	11	.95	9	1.12	20	1.23	28
22	.....	.....	.....	.....	1.14	21	1.70	74	1.23	28	1.11	19	1.00	12	1.02	13	.90	7	.96	10	1.10	18	1.19	24
23	.....	.....	.....	.....	1.12	20	1.615	65	1.25	29	1.13	20	1.02	13	1.01	12	.99	11	.91	7	1.02	13	1.23	28
24	.....	.....	.....	.....	1.13	20	1.55	58	1.24	28	1.13	20	1.04	14	1.02	13	.98	11	.95	9	1.03	14	1.20	25
25	.....	.....	.....	.....	1.19	25	1.55	58	1.23	28	1.11	19	1.02	13	1.03	14	.95	9	.90	7	.95	9	1.21	26
26	.....	.....	.....	.....	1.33	36	1.54	57	1.22	27	1.10	18	1.02	13	1.01	12	.92	8	.98	10	.94	9	1.15	22
27	.....	.....	.....	.....	1.64	67	1.53	56	1.22	27	1.13	20	1.00	12	1.00	12	.96	10	1.05	15	1.27	31	1.05	15
28	.....	.....	.....	.....	1.83	89	1.50	53	1.21	26	1.10	18	1.02	13	1.00	12	.96	10	1.01	12	1.21	26	1.04	14
29	.....	.....	.....	.....	1.87	94	1.625	66	1.20	25	1.15	22	1.08	17	1.00	12	.92	8	.97	11	1.19	24	1.08	17
30	.....	.....	.....	.....	2.00	110	1.625	66	1.21	26	1.15	22	.87	5	1.01	12	.93	8	1.00	12	1.25	29	1.06	15
31	.....	.....	.....	.....	2.05	116	.....	.....	1.20	25	.....	.....	.92	8	1.03	14	.....		.99	11	.....	....	1.08	17

Monthly Discharge of Beaver River at Feversham for 1914

Drainage Area, 37 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January							
February							
March	116	16	33	3.13	.43	.90	1.04
April	110	53	71	2.97	1.43	.93	2.15
May	66	25	35	1.78	.69	.96	1.10
June	24	18	21	.67	.50	.58	.64
July	18	5	14	.50	.16	.39	.45
August	22	8	14	.59	.22	.39	.45
September	15	5	8	.41	.13	.34	.27
October	20	7	12	.55	.19	.32	.37
November	31	7	16	.84	.20	.44	.49
December	35	12	22	.94	.34	.61	.70
The period	116	5	25	3.13	.13	.68	7.66

Severn River at Severn Bridge

Location —At the highway bridge in the Town of Severn, Township of Morrison, Muskoka District.

Records Available —Monthly discharge measurements, June, 1912, to Oct., 1914. Daily gauge heights. April 5, 1913. to July 31, 1914.

Drainage Area —2,075 square miles.

Gauge —Vertical steel staff with enamelled face, graduated in feet and inches, 0 to 12 feet, attached to the centre pier, on the downstream side of bridge. This gauge was installed April 5, 1912. The elevation of the zero mark, referred to sea level, is 695.00 feet.

Channel —Straight for about ¾ mile above and 1 mile below the station. Both banks are low, clean and will overflow at high stages. The bed of the stream is composed of clay and silt. The current is moderate.

Discharge Measurements —Made from the highway bridge with a large Price current meter.

Floods —The flood of April, 1913, which is the highest known, attained a height of 706 feet on the present gauge.

Control —Sparrow Lake, below the station has no effect on the stage. The nearest dam above is at Wasdell's Falls. As the flow is ample at all times for the power generated at the Hydro-Electric power plant, the water is not held back during certain portions of the day, and thus the dam has no appreciable influence on the gauge heights at Severn.

Winter Flow —During the winter months the river is covered with ice. and measurements are made through the ice to determine the winter discharge.

Observer —Geo. Blackwell, Washago, Ont.

Discharge Measurements of Severn River at Severn Bridge in 1912-3-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1912							
June 5....	Roberts, E		3160	1.94	702.66	6173	.....
July 3....	"		2567	1.35	699.76	3469	.....
Aug. 1....	"		2294	0.98	698.66	2250	.....
Sept. 3....	"		2276	0.93	698.56	2118	.....
Oct. 3....	"		2100	0.81	698.06	1700	.....
Nov. 5....	"		2411	1.11	699.69	2679	.....
Dec. 3....	"		2510	1.40	700.06	3504	.....
1913							
Jan. 7....	"		2407	1.04	699.56	2526	.....
Feb. 3....	"		2449	1.15	699.86	2837	.....
Mar. 6....	"		2258	1.03	698.86	2348	.....
April 5....	"		3598	2.49	705.46	8981	.....
May 5....	"		2778	1.86	701.46	5172	.....
June 3....	Murray, W. S...	205	2389	1.45	699.56	3479	.....
July 1....	"	200	2233	0.91	698.76	2039	.....
Aug. 1....	"	192	1998	0.43	697.46	860	.....
Sept. 3....	"	197	1961	0.31	697.26	626	.....
Oct. 2....	"	184	1912	0.24	697.16	460	.....
Oct. 24 (b)	"	186	1747	0.20	696.16	344	.....
Nov. 4 (a)	McLennan, C. C.	183	1742	0.20	696.36	361	.....
Nov. 11 (b)	Murray, W. S...	112	642	1.04	697.08	947	.....
Nov. 21 (b)	"	112	1021	1.10	697.21	1123	.....
Dec. 6 (b)	"	110	1026	1.12	697.77	1158	.....
Dec. 16 (b)	"	110	1001	1.03	697.28	1028	.....
1914							
Jan. 7 (b)	"	110	1078	1.01	697.33	1093	.....
Feb. 6 (b)	"	110	921	0.79	696.54	734	.....
Mar. 7 (b)	"	110	971	0.82	696.58	802	.....
April 1....	"	194	2313	1.37	699.70	3185	.....
May 6 (b)	"	111	1122	2.09	699.41	2348	.....
June 3 (b)	"	111	1022	1.31	697.75	1344	.....
July 7 (b)	"	111	833	0.86	697.12	720	.....
Aug. 5 (b)	"	87	758	0.39	696.58	295	.....
Sept. 8 (b)	"	101	587	0.35	696.97	207	.....
Oct. 5 (c)	"		23	4.40	694.80	99	.....
Nov. 2 (c)	"		51	4.39	695.05	224	.....
Dec. 3....	"	200	2263	0.93	698.83	2126	.....

(a) Measurement taken at Wasdell's Falls
(b) Measurement taken at Dalton Road Bridge
(c) Measurement computed from flow through dam and machine at Wasdell's Falls plant
(d) Backwater caused by log jam

Daily Gauge Height and Discharge of Severn River at Severn Bridge for 1913

Drainage Area, 2,075 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	698.84	1920	700.26	3120	699.01	2050	705.99	9340	701.93	5525	699.80	3375	698.62	2200	697.31	1075	697.22	1010	696.81	740	696.50	550	697.73	1410
2	698.84	1920	700.26	3120	699.01	2050	705.95	9270	701.87	5450	699.74	3325	698.58	2150	697.16	950	697.26	1025	696.81	740	696.46	520	697.67	1350
3	698.84	1920	700.18	3050	698.97	2015	705.91	9190	701.73	5300	699.64	3225	698.47	2025	697.07	900	697.26	1025	696.81	740	696.42	500	697.69	1360
4	698.84	1920	700.09	2980	698.93	1980	705.91	9195	701.60	5175	699.58	3175	698.41	1975	697.03	875	697.26	1025	696.89	790	696.42	500	697.77	1440
5	698.84	1920	700.01	2910	698.88	1950	705.47	*9050	701.50	5075	699.45	3050	698.32	1900	696.95	825	697.26	1025	696.89	790	696.40	475	697.81	1490
6	698.84	1920	699.93	2840	698.84	1920	705.39	8950	701.39	4975	699.51	3100	698.24	1825	696.93	810	697.24	1020	696.89	790	696.33	450	697.79	1450
7	698.84	1920	699.84	2770	698.80	1885	705.31	8900	701.22	4800	699.51	3100	698.26	1850	696.90	800	697.22	1010	697.05	875	696.33	450	697.71	1380
8	698.84	1920	699.76	2700	698.76	1850	705.28	8850	701.05	4625	699.45	3050	698.22	1810	696.95	825	697.13	945	697.05	875	696.40	475	697.73	1410
9	698.84	1920	699.68	2620	698.64	1745	705.12	8700	700.89	4475	699.37	2950	698.14	1750	697.00	850	697.06	890	697.05	875	696.48	535	697.56	1275
10	698.84	1920	699.58	2540	698.51	1640	705.07	8625	700.76	4350	699.26	2850	698.07	1675	697.01	850	696.99	845	697.05	875	696.63	625	697.60	1300
11	698.84	1920	699.51	2470	698.59	1710	705.09	8650	700.74	4325	699.22	2800	697.99	1625	697.01	855	696.97	835	696.99	845	697.00	850	697.60	1300
12	698.92	1985	699.43	2400	698.68	1780	705.05	8600	700.59	4175	699.16	2750	697.99	1625	697.01	855	696.95	825	696.93	810	697.27	1040	697.50	1225
13	699.01	2050	699.39	2375	698.85	1915	704.93	8500	700.55	4150	699.08	2650	697.99	1625	697.05	875	696.93	810	696.59	590	697.29	1050	697.44	1165
14	698.92	1985	699.35	2355	699.01	2050	704.80	8375	700.51	4125	698.93	2525	697.95	1600	697.07	900	696.85	760	696.59	590	697.00	850	697.44	1165
15	698.84	1920	699.27	2275	699.72	2665	704.66	8225	700.45	4050	698.88	2475	697.93	1575	697.09	925	696.76	700	696.47	525	696.99	845	697.35	1100
16	698.80	1880	699.18	2200	700.43	3280	704.61	8175	700.34	3950	698.80	2375	697.86	1500	697.14	950	696.85	760	696.28	410	696.90	800	697.25	1035
17	698.76	1840	699.14	2165	700.85	3655	704.43	8000	700.34	3950	698.76	2325	697.93	1575	697.18	990	696.76	700	696.18	370	696.77	700	697.19	995
18	699.01	2050	699.10	2130	701.26	4030	704.30	7875	700.34	3950	698.71	2275	697.99	1625	697.18	990	696.76	700	696.26	400	696.73	675	697.17	985
19	699.26	2260	699.09	2130	701.51	4265	704.16	7725	700.32	3925	698.87	2450	697.99	1625	697.18	990	696.76	700	696.11	315	696.88	785	697.08	965
20	699.51	2480	699.09	2130	701.76	4500	703.93	7500	700.14	3750	698.82	2400	697.95	1600	697.18	990	696.76	700	696.15	350	697.04	865	697.10	925
21	699.76	2700	699.09	2130	702.68	5390	703.64	7225	700.10	3700	698.87	2450	697.93	1575	697.18	990	696.76	700	696.11	315	697.19	990	697.27	1050
22	699.93	4840	699.09	2130	703.59	6280	703.49	7075	700.12	3725	698.97	2560	697.91	1550	697.18	990	696.76	700	695.99	275	697.46	1200	697.41	1160
23	700.09	2980	699.09	2130	704.04	6730	703.30	6900	700.10	3700	698.91	2500	697.86	1500	697.18	990	696.85	760	695.97	260	697.63	1325	697.48	1210
24	700.18	3050	699.09	2130	704.49	7180	703.03	6600	700.10	3700	698.87	2450	697.80	1450	697.20	1000	696.76	700	696.05	285	697.71	1380	697.67	1350
25	700.26	3120	699.09	2130	704.82	7500	703.78	7350	700.10	3700	698.87	2450	697.89	1525	697.18	990	696.76	700	695.97	260	697.77	1440	697.67	1350
26	700.26	3120	699.09	2130	705.15	7820	702.41	6000	700.03	3625	698.91	2500	697.84	1475	697.18	990	696.76	700	696.05	285	697.83	1475	697.73	1410
27	700.26	3120	699.05	2090	705.32	7985	702.30	5900	699.95	3550	698.85	2425	697.81	1460	697.18	990	696.76	700	696.42	500	697.77	1440	697.75	1425
28	700.26	3120	699.01	2050	705.49	8150	702.22	5800	699.86	3450	698.82	2400	697.76	1425	697.18	990	696.76	700	696.50	550	697.75	1425	697.83	1505
29	700.26	3120	.....	.....	705.53	8190	702.07	5650	699.84	3425	698.76	2325	697.76	1425	697.20	1000	696.81	740	696.50	550	697.65	1340	697.83	1505
30	700.26	3120	.....	.....	705.57	8230	702.01	5600	699.80	3375	698.66	2225	697.58	1285	697.22	1010	696.85	760	696.50	550	697.71	1380	697.83	1505
31	700.26	3120	.....	.....	705.78	8785	.....	.....	699.80	3375	.....	.....	697.45	1175	697.26	1025	.....	.....	696.50	550	.....	.....	697.73	1410

*Severn Bridge gauge installed April 5, 1913.

Daily Gauge Height and Discharge of Severn River at Severn Bridge for 1914

Drainage Area 2,075 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	697.65	1290	696.46	690	696.67	790	696.62	3000	699.42	2800	698.04	1520	696.92	910	696.52	645	.....		695.25		.....	.....	698.27	1473
2	697.59	1260	696.46	690	696.71	810	700.12	3500	699.42	2800	697.83	1400	696.92	910	696.50	635	.....		695.17		.....	.....	698.86	1920
3	697.55	1235	696.50	710	696.69	800	700.33	3680	699.42	2800	697.83	1400	696.92	910	696.50	635	.....		695.06		.....	.....	699.02	2060
4	697.50	1205	696.50	710	696.67	790	700.37	3720	699.42	2800	697.79	1370	696.92	910	696.55	658	.....		.....		.....	.....	698.88	1940
5	697.54	1230	696.52	720	696.67	790	700.42	3770	699.42	2800	697.75	1350	696.92	910	696.50	635	.....		694.83		.....	.....	699.11	2130
6	697.46	1180	696.60	755	696.63	770	700.40	3750	699.42	2800	697.75	1350	696.96	925	696.50	635	.....		694.75		.....	.....	699.06	2090
7	697.33	1120	696.66	780	696.63	770	700.33	3680	699.42	2800	697.75	1350	696.88	890	696.35	570	.....		694.75		.....	.....	698.77	1850
8	697.27	1080	696.73	820	696.62	770	700.27	3620	699.50	2880	697.75	1350	696.88	890	696.35	570	.....		.....		.....	.....	698.65	1750
9	697.25	1075	696.81	855	696.58	750	700.17	3550	699.50	2880	697.67	1300	696.88	890	.....	.....	.....		694.70		.....	.....	698.44	1568
10	697.23	1070	696.96	925	696.58	750	700.13	3500	699.50	2880	697.50	1205	696.83	875	.....	.....	.....		694.70		.....	.....	698.23	1450
11	697.17	1040	697.02	960	696.58	750	700.14	3420	699.50	2880	697.46	1180	696.96	925	.....	.....	.....		.....		.....	.....	698.02	1338
12	697.11	1005	697.27	1080	696.50	710	699.88	3250	699.38	2760	697.42	1160	697.00	950	.....	.....	.....		.....		.....	.....	697.94	1297
13	697.08	990	697.25	1075	696.50	710	699.81	3200	699.25	2620	697.42	1160	697.00	950	.....	.....	.....		.....		.....	.....	697.77	1212
14	697.08	990	697.25	1075	696.50	710	699 67	3020	699.21	2600	697.16	1025	697.06	975	.....	.....	.....		.....		.....	.....	697.56	1110
15	697.08	990	697.25	1075	696.45	685	699.56	2940	699.17	2550	697.13	1015	697.17	1030	.....	.....	.....		.....		.....	.....	697.52	1093
16	697.08	990	697.17	1030	696.41	665	699.48	2850	699.08	2470	697.08	990	697.17	1030	696.38	585	.....		.....		.....	.....	697.61	1135
17	697.08	990	697.31	1105	696.50	710	699.40	2770	698.92	2320	697.08	990	697.23	1070	696.42	601	.....		.....		.....	.....	697.27	976
18	697.00	950	697.44	1175	696.50	710	699.33	2700	698.83	2250	696.92	910	697.27	1085	696.48	628	.....		.....		.....	.....	697.19	939
19	696.94	920	697.52	1220	696.50	710	699.25	2620	698.67	1975	696.92	910	697.33	1230	696.59	675	.....		.....		697.86	1259	697.19	939
20	696.91	900	697.50	1205	696.54	730	699.25	2620	698.46	1810	696.92	910	697.29	1195	696.76	750	.....		.....		697.86	1259	697.11	900
21	696.85	875	697.32	1110	696.58	750	699.33	2700	698.29	1690	696.92	910	697.25	1150	696.85	790	.....		.....		697.86	1259	697.11	900
22	696.75	830	697.31	1105	696.64	775	699.33	2700	698.33	1715	696.83	865	697.25	1150	696.85	790	.....		.....		697.78	1219	697.11	900
23	696.65	780	697.25	1075	696.73	820	699.33	2700	698.33	1715	696.83	865	697.25	1150	696.90	810	.....		.....		697.78	1215	696.94	826
24	696.56	735	697.23	1070	696.75	830	699.33	2700	698.25	1660	696.75	830	697.17	1030	696.94	826	.....		.....		697.61	1135	696.94	826
25	696.50	710	697.13	1015	696.75	830	699.33	2700	698.25	1660	696.75	830	697.10	1000	696.92	818	.....		.....		697.61	1135	696.77	753
26	696.46	690	696.98	940	696.87	885	699.30	2670	698.25	1660	696.67	790	697.02	960	696.93	822	.....		.....		697.61	1135	696.77	753
27	696.50	710	696.83	865	697.02	960	699.42	2800	698.33	1715	696.58	750	697.00	950	696.94	826	695.25		.....		697.77	1212	696.61	683
28	696.50	710	696.77	840	697.79	1370	699.42	2800	698.42	1780	696.67	790	696.96	930	696.94	826	695.33		.....		697.86	1259	696.52	645
29	696.42	670	.....	.....	698.37	1745	699.42	2800	698.33	1715	696.75	830	696.88	890	696.92	818	695.33		.....		697.77	1212	696.44	610
30	696.42	670	.....	.....	698.91	2300	699.42	2800	698.33	1715	696.83	865	696.83	865	.....	.....	695.33		.....		697.94	1297	696.44	610
31	696.42	670	.....	.....	699.39	2770	.....	.....	698.31	1700	.....	.....	696.77	830	.....	.....	.....		.....		.....	.....	696.44	610

Dam at Washago closed.

Discharges for low gauge heights indefinite.

NOTE—Commencing Aug. 1st gauge heights were read at Wasdell's Falls.

Monthly Discharge of Severn River at Severn Bridge for 1913

Drainage Area, 2,075 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile.			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	4,840	1,840	2,419	2.33	.89	1.17	1.39
February	3,120	2,050	2,432	1.51	.99	1.17	1.26
March	8,785	1,640	4,231	4.24	.79	2.04	2.42
April	9,340	5,600	7,858	4.50	2.70	3.79	4.23
May	5,525	3,375	4,175	2.66	1.63	2.01	2.32
June	3,375	2,225	2,680	1.63	1.07	1.29	1.44
July	2,200	1,175	1,644	1.06	.57	.79	.91
August	1,075	800	937	.52	.39	.45	.52
September	1,025	700	815	.49	.34	.39	.43
October	875	260	570	.42	.13	.27	.31
November	1,475	450	898	.71	.21	.43	.50
December	1,505	905	1,276	.73	.44	.62	.73
The year	9,340	260	2,496	4.50	.13	1.20	16.46

Monthly Discharge of Severn River at Severn for 1914

Drainage Area, 2,075 Square Miles

Month	Discharge in Second-feet			Drainage in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	1,290	670	953	.62	.32	.46	.55
February	1,220	690	953	.59	.33	.46	.49
March	2,770	665	933	1.34	.32	.45	.53
April	3,770	2,620	3,084	1.82	1.26	1.48	1.65
May	2,880	1,660	2,297	1.38	.80	1.34	1.55
June	1,520	750	1,072	.73	.36	.52	.58
July	1,195	840	979	.58	.41	.47	.54
August	.....	.....	.....	.....	.....	.....	.....
September	.....	.....	.....	.....	.....	.....	.....
October	.....	.....	.....	.....	.....	.....	.....
November	.....	.....	.....	.....	.....	.....	.....
December	2,130	610	1,203	1.03	.29	.58	.67
The period	3,770	665	1,469	1.82	.32	.71	5.89

Note—Totals are computed for the period January 1st to July 31st.

Black River near Washago

Location—At the highway bridge known as Kennedy's Bridge, four miles above the first highway bridge, which crosses the river on the main road from the Town of Washago, and about 5 miles southeast of the Town of Washago, Township of Mara, Ontario County. The old station was located at the first highway bridge.

Records Available—Monthly discharge measurements, Aug., 1913, to Dec., 1914.

Drainage Area—598 square miles.

Gauge—A bench mark gauge (elevation 30.00) painted on a tie rod on the downstream side of the bridge, from which measurements are taken to the surface of the water, by means of a graduated staff.

Channel—Straight for about 300 feet above and 1 mile below the station. Both banks are low, wooded and liable to overflow at high stages. The bed of the stream is composed of rock and clay, practically permanent. The current is moderate, one channel existing at all stages of the river.

Discharge Measurements—Made from bridge with a large Price current meter.

Control—During low flows in the summer, a number of temporary dams are built to collect the water for floating logs down the stream, thus interfering with the natural flow of the river.

Winter Flow—Measurements are made through the ice during the winter months to determine the winter discharge.

Discharge Measurements of Black River near Washago in 1913-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1913							
Aug. 1....	Murray, W. S...	34	42	2.93	18.80	124	.21
Sept. 3....	" ..	34	29	1.50	18.40	45	.08
Oct. 2 (a)	" ..	12	6	0.50	17.90	3	.00
Nov. 21....	" ..	84	705	0.96	19.40	674	1.12
Dec. 6....	" ..	84	706	1.01	19.60	718	1.20
Dec. 16....	" ..	84	682	0.98	19.30	673	1.12
1914							
Jan. 8 (b)	" ..	.....	701	0.41	19.50	289	.48
Feb. 6 (c)	" ..	.....	608	0.76	22.30	465	.78
Mar. 7....	" ..	100	550	0.59	21.70	330	.55
April 2....	" ..	120	1233	2.13	25.90	2629	4.39
May 6....	" ..	120	1154	2.14	24.75	2476	4.14
June 3....	" ..	120	611	1.31	22.40	805	1.35
July 7(d)	" ..	95	432	0.21	21.00	93	.16
Sept. 8....	" ..	90	401	0.24	20.70	95	.16
Oct. 5....	" ..	95	417	0.18	20.80	75	.13
Nov. 2 (e)	" ..	95	405	0.13	20.65	52	.09
Dec. 3....	" ..	120	829	2.06	24.50	1708	2.86

(a) Water held back for log drive
(b) Backwater from Severn River caused by dam at Wasdell's Falls.
(c) New section located at Kennedy's Bridge, 4 miles up stream.
(d) Logs in stream.
(e) Backwater from temporary dam below section.

Muskoka River (South Branch) at Tretheway's Falls

Location —At a small steel highway bridge known as Tretheway's Falls Bridge, about 1 mile south of the Muskoka Falls Post Office and about 7 miles south of the Town of Bracebridge, Township of Draper, Muskoka District.

Records Available —Monthly discharge measurements. Aug., 1912, to July, 1914. Daily gauge heights, June 4 to Dec. 31, 1914.

Drainage Area —658 square miles.

Gauge —As there is no available place for establishing a permanent staff gauge, a bench mark (elevation 25.00), painted on a stringer, on the up-stream side of the bridge, is used in ascertaining the water elevation, by measuring down to the surface of the stream with a graduated staff. It is referred to a bench mark (elevation 33.08) painted on a large rock on the right bank, 90 feet to the right of the downstream side of the bridge.

Channel —Straight for about 300 feet above and 300 feet below the station. The banks are fairly high, rocky and wooded and will not overflow. The current is very swift and the bed of stream is rough and rocky, with a heavy slope about 250 feet below the section.

Discharge Measurements —Made from the upstream side of the bridge.

Winter Flow.—The gauge is located where the current is swift and ice seldom forms across the river for the entire width. The relation, therefore, between the gauge height and the discharge is not affected by ice.

Control —During the summer months the river is used extensively for log driving.

Accuracy —A fairly well-defined rating curve has been established from the monthly discharge measurements.

Observer —Wesley Morrow, Muskoka Falls, Ontario.

Discharge Measurements of Muskoka River (South Branch) at Tretheway's Falls in 1912-3-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1912							
Aug. 2(a).	Roberts, E.	.....	295	4.53	16.60	1337	.....
Sept. 4....	"	.....	146	2.39	13.30	349	.....
Oct. 5....	"	.....	154	2.69	13.50	414	.....
Nov. 6....	"	.....	198	6.35	14.50	1258	.....
Dec. 4(b).	"	.....	294	4.19	16.50	1232	.....
1913							
Jan. 8....	"	.....	209	5.24	14.70	1096	.....
Feb. 4....	"	.....	245	5.15	15.50	1262	.....
Mar. 8....	"	.....	227	5.49	15.10	1248	.....
Apr. 7....	"	.....	428	17.05	19.00	7312	.....
May 6....	"	.....	317	6.86	16.90	2175	.....
June 4....	Murray, W. S...	50	191	4.46	14.30	855	.....
July 2....	"	50	155	2.62	13.50	408	.....
Aug. 1....	"	50	232	5.70	15.20	1324	.....
Sept. 3....	"	50	119	2.44	12.60	292	.....
Oct. 14....	"	50	107	1.90	12.30	204	.....
Nov. 12....	"	45	116	2.93	13.30	339	.....
Dec. 7....	"	50	171	3.85	13.90	658	.....
1914							
Jan. 8....	"	50	155	2.32	13.50	360	.....
Feb. 7....	"	50	187	4.13	14.20	773	.....
Mar. 8....	"	50	178	4.36	14.00	777	.....
Apr. 2....	"	50	191	4.18	14.30	802	.....
May 7....	"	50	325	8.75	17.10	2840	.....
June 4(c).	"	50	244	5.38	15.55	1312	.....
July 7....	"	50	233	6.26	15.20	1459	.....

(a) Log drive, water raised 3 feet in a few hours.
(b) Float measurement
(c) Logs in stream

Daily Gauge Height and Discharge of Muskoka River (South Branch) at Tretheway's Falls for 1914

Drainage Area, 658 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	16.83	2450	12.67	280	12.83	325	12.58	240	12.92	350	13.75	650
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	16.83	2450	12.67	280	12.83	325	12.67	280	12.83	325	14.00	750
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	16.50	2200	12.75	300	12.92	350	12.67	280	12.83	325	14.25	870
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15.50	1.25	16.00	1830	12.75	300	12.92	350	12.58	240	12.75	300	14.00	750
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15.58	1560	15.67	1630	12.83	325	12.92	350	12.58	240	12.67	280	13.75	650
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15.50	1525	15.62	1600	12.83	325	12.83	325	12.67	280	12.67	280	13.67	610
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.67	610	16.42	2140	12.75	300	12.92	350	12.67	280	12.75	300	13.67	610
8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15.33	1440	15.58	1560	12.75	300	12.92	350	12.75	300	12.67	280	13.58	580
9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15.42	1480	15.83	1740	12.75	300	12.83	325	12.75	300	12.67	280	13.50	550
10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14.83	1160	15.33	1440	13.00	360	12.83	325	12.83	325	12.75	300	13.42	510
11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15.00	1250	15.58	1560	13.00	360	12.92	350	12.83	325	12.83	325	13.42	510
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	16.00	1830	15.00	1250	12.92	350	12.83	325	12.83	325	13.00	360	13.50	550
13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14.83	1160	15.00	1250	12.83	325	12.92	350	12.75	300	13.00	360	13.50	550
14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14.50	1000	15.00	1250	12.75	300	12.83	325	12.75	300	13.00	360	13.50	550
15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14.00	750	15.42	1480	12.75	300	12.83	325	12.83	325	13.17	420	13.42	510
16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.83	680	15.00	1250	12.75	300	12.67	280	12.83	325	13.58	580	13.42	510
17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14.67	1080	15.00	1250	12.83	325	12.58	240	12.83	325	13.42	510	13.50	550
18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14.50	1000	13.00	360	12.83	325	12.58	240	12.83	325	13.33	475	13.50	550
19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14.58	1030	13.17	420	12.92	350	12.50	220	12.75	300	13.25	450	13.58	580
20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14.75	1120	13.00	360	13.00	360	12.50	220	12.75	300	13.25	450	13.58	580
21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14.42	960	13.00	360	13.00	360	12.67	280	12.67	280	13.17	420	13.58	580
22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14.75	1120	13.17	420	12.92	350	12.75	300	12.67	280	13.17	420	13.67	610
23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14.75	1120	13.17	420	12.83	325	12.88	325	12.58	240	13.17	420	13.67	610
24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14.17	830	13.00	360	12.92	350	12.83	325	12.58	240	13.33	475	13.75	650
25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14.00	750	13.00	360	12.92	350	12.75	300	12.58	220	13.58	580	13.83	680
26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.50	550	12.92	350	12.83	325	12.75	300	12.50	220	13.58	580	13.83	680
27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15.00	1250	12.83	325	12.75	300	12.75	300	12.67	280	13.67	610	13.67	610
28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14.67	1080	12.75	300	12.83	325	12.75	300	12.67	280	13.83	680	13.75	650
29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15.00	1250	12.75	300	12.67	280	12.67	280	12.75	300	14.00	750	13.83	680
30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15.50	1525	12.83	325	12.75	300	12.67	280	12.83	325	13.83	680	14.00	750
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12.75	300	12.75	300	.....	.....	13.00	360	.....	.....	14.00	750

Monthly Discharge of Muskoka River (South Branch) at Tretheway's Falls for 1914

Drainage Area, 658 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January							
February							
March							
April							
May							
June 4th–30th	1,560	550	1,135	2.37	.84	1.73	1.74
July	2,450	300	1,074	3.73	.46	1.63	1.88
August	360	280	320	.55	.43	.49	.56
September	350	220	308	.53	.33	.47	.52
October	360	220	288	.55	.33	.44	.51
November	750	280	431	1.14	.43	.66	.74
December	870	510	620	1.32	.77	.94	1.08
The period	2,450	220	589	3.73	.33	.89	7.03

Totals are computed for the period June 4 to December 31

Discharge Measurements of Muskoka River (North Branch) at High Falls (a) in 1912-3

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1912							
June 6....	Roberts, E.....	.....	878	3.22	.....	2828	2.91
July 3....	"	.....	59	2.54	.....	150	0.15
Aug. 3....	"	.....	65	2.91	.....	193	0.20
Sept. 4....	"	.....	65	3.39	21.81	215	0.22
Oct. 4....	"	.....	96	4.07	22.31	391	0.40
Nov. 6....	"	.....	666	1.71	23.70	1139	1.18
Dec. 4....	"	.....	820	3.95	25.90	3242	3.36
1913							
Jan. 8....	"	.....	670	1.70	23.80	1141	1.18
Feb. 4....	"	.....	150	1.40	24.20	1561	1.62
March 7....	"	.....	693	1.85	24.00	1268	1.31
April 6....	"	.....	1144	5.71	27.00	6608	6.85
May 6....	"	.....	800	2.95	24.60	2367	2.46
June 4....	Murray, W. S. ..	104	645	1.31	23.60	847	0.88
July 2....	"	72	102	1.94	22.50	200	0.21
Aug. 1....	"	74	85	3.72	22.30	318	0.33
Sept. 4....	"	60	68	3.40	22.10	235	0.24
Oct. 14....	"	56	59	2.91	22.70	171	0.18
Nov. 12....	"	109	725	2.14	24.00	1552	1.62

(a) This station has been discontinued

Discharge Measurements Muskoka River (Main Stream) at Bala (a) in 1912-3-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1912							
Sept. 12....	Roberts, E.	.....	900	1.87	.....	1684	0.72
Oct. 12....	"	.....	893	1.87	.....	1664	0.71
Nov. 14....	"	.....	1035	5.59	.....	5797	2.48
Dec. 12....	"	.....	982	6.85	.....	6732	2.88
1913							
Jan. 14....	"	.....	835	3.16	.....	2646	1.13
Feb. 12....	"	.....	784	4.62	.....	3263	1.39
Mar. 15....	"	.....	716	5.23	.....	3748	1.60
Apr. 12....	"	.....	1460	9.29	.....	13576	5.80
May 9....	Murray, W. S...	113	1002	6.36	.....	6377	2.72
June 11....	"	113	841	0.97	.....	818	0.35
July 9....	"	113	861	0.17	.....	150	0.06
Aug. 13....	"	113	818	0.59	.....	484	0.21
Sept. 12....	"	113	625	0.09	.....	57	0.02
Oct. 22....	"	113	796	0.28	.....	224	0.10
Nov. 20....	"	189	1003	1.95	.....	1962	0.84
Dec. 15....	"	189	799	2.02	.....	2333	1.00
1914							
Jan. 15....	"	189	1127	1.55	.....	1820	0.78
Feb. 14....	"	182	880	1.73	.....	1518	0.65
Mar. 14....	"	182	802	1.72	.....	1376	0.59
Apr. 8....	"	182	1162	3.84	.....	4468	1.91
May 14....	"	182	1065	2.93	.....	3131	1.34

(a) This station discontinued on account of backwater from dam.

Seguin River near Parry Sound

Location —500 feet below Mountain dam, about 2 miles above the highway bridge, 4 miles above Mill Lake dam, and about 7 miles above the Town of Parry Sound, Township of McDougal, Parry Sound District. The old station was located at the highway bridge.

Records Available —Monthly discharge measurements, June, 1912, to Dec., 1914.

Drainage Area —363 square miles.

Gauge —A bench mark painted on the side of a large rock, which projects from the right bank about 2 feet over the water. It is located at the cross-section, and measurements are made from this bench mark (elevation 15.00) to the surface of the water by means of a graduated staff.

Channel —Straight for about 300 feet above and 500 feet below the station. Both banks are high, rocky, wooded, and will not overflow. The bed of the stream is composed of rocks and boulders. The current is swift and flows through one channel at all stages of the river.

Discharge Measurements —Made at low and ordinary stages with a Price current meter by wading. During high water, measurements are made at the highway bridge.

Control —The Mountain dam, 500 feet above the station, causes fluctuation at the gauge when operated. The Mill Lake dam, 4 miles downstream, has no effect on the station.

Winter Flow —Ice forms along the bank at the station during the winter months, but the river is entirely covered with ice above and below.

Discharge Measurements of Seguin River near Parry Sound in 1912-3-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1912							
June 8 (a)	Roberts, E	....	516	2.73	11.10	1406	3.87
July 5....	"	....	510	0.58	11.00	293	0.81
Aug. 8....	"	....	321	0.59	8.00	189	0.52
Sept. 11....	"	....	327	0.74	8.40	243	0.67
Oct. 11....	"	....	189	0.64	6.20	121	0.33
Nov. 12....	"	....	473	2.18	10.70	1034	2.85
Dec. 12....	"	....	586	3.89	12.50	2283	6.29
1913							
Jan. 13....	"	63	473	2.15	10.70	1016	2.80
Feb. 11....	"	63	523	1.35	11.50	710	1.95
Mar. 14....	"	63	470	1.46	10.80	700	1.93
April 11....	"	63	605	4.72	12.80	2849	7.85
May 9....	"	63	529	1.32	11.60	700	1.93
June 10....	Murray, W. S....	63	523	0.57	11.50	299	0.82
July 8....	"	63	334	0.24	8.20	82	0.23
Aug. 12....	"	63	145	1.16	5.20	168	0.46
Sept. 10....	"	63	151	0.92	5.30	139	0.38
Oct. 21....	"	63	145	1.46	5.20	197	0.54
Nov. 20....	"	63	535	1.74	11.70	937	2.58
Dec. 14....	"	63	506	1.58	11.28	805	2.22
1914							
Jan. 15....	"	63	420	0.62	9.90	260	0.72
Feb. 14....	"	63	422	1.03	9.90	435	1.20
April 8....	"	63	431	4.71	10.05	2036	5.60
May 14....	"	63	510	1.64	11.30	833	2.30
June 11 (b)	"	98	146	2.25	11.00	328	0.90
Aug. 15....	"	85	144	3.63	11.00	521	1.44
Sept. 17....	"	68	71	2.27	10.40	161	0.44
Oct. 11....	"	63	164	0.99	10.05	161	0.44
Nov. 10....	"	60	76	2.18	10.35	166	0.46
Dec. 11....	"	72	94	2.36	10.70	220	0.61

(a) Gauge heights at old section affected by backwater from Mill Lake Dam.
(b) New section established

Maganetawan River near Katrine

Location —The wading section is 400 yards east of the Grand Trunk Railway tracks; and 2½ miles south of the Katrine Station in the Township of Armour, Parry Sound District. For high stages, a highway bridge known as Katrine Bridge is used, 1 mile west of the Katrine Railway Station.

Records Available —Discharge measurements, June, 1912, to Dec., 1914.

Drainage Area —151 square miles.

Gauge —A bench mark gauge at the wading section (elev. 10.00) painted on a rock in the centre of the river, from which measurements are made to the surface of the water, by means of a graduated staff. A vertical staff gauge with enamelled face, graduated in feet and inches, is located at the bridge station and fastened to pile in the centre of river, on the upstream side. The zero of the gauge (elev. 18.00), is referred to a bench mark (elev. 33.13) on a square stump, 625 feet along the road to the right of the bridge.

Channel —Straight at the wading section for about 500 feet above and 500 feet below the station. The banks are low, sandy, wooded, and liable to overflow at high stages. The bed of the stream is composed of gravel and is shifting. The current is swift. At the bridge the bed is composed of clay and sand, the current flowing very slowly.

Discharge Measurements —Made from the bridge at high stages and at the wading section at low and ordinary stages of the river, by means of a large Price current meter.

Winter Flow —During the winter months the river is covered with ice, and measurements are made through the ice to determine the winter discharge. The relation of gauge height to discharge is affected by ice from about December to January.

Discharge Measurements of Maganetawan River near Katrine in 1912-3-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1912							
June 15....	Roberts, E	.....	785	0.60	20.30	473	3.16
July 4....	"	.....	741	0.26	19.40	192	1.27
Aug. 3....	"	.....	75	1.40	.....	105	0.69
Sept. 5 (b)	"	.....	75	1.43	8.40	107	0.71
Oct. 7 (b)	"	.....	80	1.65	8.50	132	0.87
Nov. 8....	"	.....	735	0.57	19.80	418	2.76
Dec. 5....	"	.....	795	0.74	20.50	583	3.85
1913							
Jan. 9....	"	.....	711	0.31	19.60	227	1.50
Feb. 5 (b)	"	.....	148	2.02	9.10	300	1.98
Mar. 9 (b)	"	.....	128	1.70	8.90	205	1.35
April 8....	"	.....	1036	1.36	23.40	1415	9.35
May 6....	"	83.5	835	0.97	21.00	817	5.39
June 5....	Murray, W. S...	84.5	737	0.48	19.40	358	2.36
July 3 (b)	"	100	61	1.26	8.25	77	0.51
Aug. 1....	"	105	48	1.24	18.50	59	0.39
Sept. 4 (b)	"	93	47	1.35	8.15	64	0.42
Oct. 15 (b)	"	100	61	1.46	8.40	89	0.59
Nov. 13....	"	81	702	0.52	19.40	366	2.42
Dec. 8....	"	81	762	0.53	20.10	407	2.69
1914							
Jan. 9....	"	84.5	611	0.05	18.41	32	0.21
Mar. 8....	"	100	113	1.75	18.00	497	1.30
April 3....	"	84.5	652	0.74	18.67	484	3.19
May 8 (a)	"	.....	890	0.62	21.70	555	3.66
June 6....	"	85	734	0.84	19.79	620	4.09
July 10 (b)	"	100	56	1.41	8.20	79	0.52
Aug. 6 (b)	"	60	25	1.77	8.05	43	0.28
Sept. 10 (b)	"	110	207	1.45	9.60	300	1.98
Oct. 6 (b)	"	75	26	1.96	8.05	52	0.34
Nov. 3 (b)	"	100	72	1.42	8.50	102	0.67
Dec. 4....	"	84.5	745	0.93	19.91	681	4.49

(a) Dam closed at time of measurement (b) Wading section at low stages

Maganetawan River at Knoeffler's Falls

Location —At the wooden highway bridge known as Knoeffler's Bridge, 200 feet below Ahmic Lake Dam, and 5 miles below the Village of Maganetawan, Township of Chapman, Parry Sound District.

Records Available —Monthly discharge measurements. Aug. to Dec., 1914.

Drainage Area —Not measured.

Gauge —A bench mark gauge (elev. 30.00) painted on a wooden brace, projecting from the downstream side of the bridge, 15 feet to the right of the centre pier. It is referred to a permanent bench mark (elev. 27.24) painted on a rock on the right bank. 50 feet above the bridge.

Channel —At the station, the river flows in 2 channels separated by a small island. Both channels are straight for about 200 feet above and 150 feet below the section, where they gradually converge and flow in a straight course for about 1,000 feet. The banks are high, rocky, wooded, and will not overflow nor completely submerge the island. The bed of the stream is rocky, and the current swift.

Discharge Measurements —Made from bridge with a large Price current meter.

Control —The Ahmic Lake Dam, 200 feet above the station, is used to raise the elevation in the lake for aid in navigation. The operation of the dam interferes with the natural flow of the river. The bed of the stream in the centre, at the dam, is very high, and the greater amount of water flows through that channel, above which, the dam is opened; thus necessitating a gauge in each channel at the station.

Winter Flow —Both channels are open during the winter months.

Accuracy —As only a few discharge measurements were made, there are not sufficient data to establish a station rating curve.

Discharge Measurements of Maganetawan River at Knoeffler's Falls in 1914

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
Aug. 7....	Murray, W. S....	.....	53	6.90	17.90	370	.....
Sept. 9....	"	.....	45	5.35	17.75	243	.....
Oct. 6....	"	.....	62	6.23	18.25	384	.....
Nov. 3....	"	.....	63	7.76	18.80	490	.....
Dec. 5....	"	.....	159	13.52	21.00	2151	.....

Discharge Measurements of Maganetawan River at Burk's Falls (a) in 1912-3-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1912							
June 14....	Roberts, E.....	.....	1062	1.41	17.50	1504	.....
July 5....	"	.....	675	0.50	.....	340	.....
Aug. 4....	"	.....	96	2.50	.....	240	.....
Sept. 6....	"	.....	127	1.97	8.10	251	.....
Oct. 5....	"	.....	148	2.23	8.50	330	.....
Nov. 8....	"	.....	1125	0.93	18.10	1047	.....
Dec. 5....	"	.....	1093	0.79	17.80	865	.....
1913							
Jan. 9....	"	.....	1072	0.63	17.40	675	.....
Feb. 5....	"	.....	1083	0.68	17.50	745	.....
Mar. 10....	"	.....	1030	0.62	17.00	639	.....
Apr. 6....	"	.....	1263	1.90	19.40	2403	.....
May 6....	"	.....	1074	1.04	17.60	1122	.....
June 5....	Murray, W. S.	114	240	2.98	8.40	716	.....
July 3....	"	115	187	1.98	8.70	353	.....
Aug. 2....	"	108	145	1.35	8.00	211	.....
Sept. 5....	"	93	132	1.46	8.40	193	.....
Oct. 16....	"	96	146	1.78	8.50	210	.....
Nov. 13	"	105	1110	0.77	17.97	862	.....
Dec. 8....	"	105	1122	0.92	18.06	1035	.....
1914							
Feb. 7....	"	.....	91	4.37	12.60	398	.....
Mar. 8....	"	40	178	2.67	11.80	475	.....
Apr. 3....	"	51	282	4.88	14.20	1377	.....
May 8....	"	35	358	8.14	14.80	2913	.....
June 5....	"	35	243	7.02	13.50	1710	.....
July 10....	"	35	146	2.42	13.40	356	.....

(a) This station has been discontinued on account of backwater from dam in the town.

South River near Powassan

Location —At the highway bridge known as Gough's Bridge, 3 miles southwest of the Town of Powassan, Township of Himsworth, District of Parry Sound.

Records Available —Monthly discharge measurements, March, 1912, to July, 1914. Daily gauge heights, March 11 to Dec. 31, 1914.

Drainage Area —322 square miles.

Gauge —Vertical steel staff gauge with enamelled face, graduated in feet and inches and located on the north-west corner of the left abutment. Zero on the gauge at elevation 24.00 was lowered to 23.00 feet on June 7, 1914. The gauge is referred to a bench mark (elevation 56.15) painted on a rock in the top corner of a barn foundation, about 350 feet from the bridge.

Channel —Straight for about 1,000 feet above and 200 feet below the station, at which point it turns to the right. The banks are low, fairly clean and liable to overflow at high stages. The bed of the stream consists of clay and boulders, and the current is moderate.

Discharge Measurements —Made from highway bridge at ordinary and high flows. During low stages of the river a wading section is used about 1 mile upstream. Measurements are made with a large Price current meter.

Control —About 5 miles below the station there is a dam used by the Nipissing Power plant, which may cause backwater at the gauge. Brush and debris in the stream affect the measurements.

Winter Flow —During the winter months the river is covered with ice, and measurements are made through the ice to determine the winter discharge.

Observer —Owen Gough, Powassan, Ont.

Discharge Measurements of South River near Powassan in 1912-3-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1912							
Mar. 19....	Roberts, E	45	105	1.29	.....	136	.....
April 4....	"	50	173	1.34	.....	231	.....
June 7....	"	69	704	1.55	28.30	1091	.....
July 4....	"	69	435	0.40	24.40	174	.....
Aug. 5....	"	69	442	0.48	24.50	214	.....
Sept. 7....	"	69	446	0.48	24.50	214	.....
Oct. 7....	"	69	453	0.59	24.60	265	.....
Nov. 9....	"	69	750	1.79	28.90	1346	.....
Dec. 6....	"	69	743	1.70	28.80	1262	.....
1913							
Jan. 10....	"	69	457	0.58	24.60	266	.....
Feb. 6....	"	69	442	0.39	24.20	167	.....
Mar. 11....	"	69	408	0.32	24.00	131	.....
April 8....	"	69	836	2.41	30.20	2021	.....
May 7....	"	35	676	1.42	27.80	962	.....
June 6....	Murray, W. S..	69	552	1.07	26.00	592	.....
July 4....	"	55	83	0.81	23.70	82	.....
Aug. 4 (a)	"	52	66	1.05	23.90	69	.....
Sept. 5....	"	53	70	1.37	23.80	96	.....
Oct. 15 (a)	"	53	89	1.59	24.50	141	.....
Nov. 14 (a)	"	70	553	0.93	26.00	514	.....
Dec. 9 (a)	"	65	522	0.87	26.00	456	.....
1914							
Jan. 9 (a)	"	66	430	0.27	24.71	117	.....
Feb. 9 (b)	"	53	136	1.22	25.00	167	.....
Mar. 10 (b)	"	45	106	1.45	24.42	155	.....
April 3	"	70	733	1.83	28.92	1344	.....
May 8 (c)	"	66	689	1.60	28.41	1103	.....
June 6 (a)	"	66	464	0.65	25.00	303	.....
July 10 {(a)(b)}	"	40	64	1.69	23.91	109	.....

(a) Débris in stream (b) Wading section (c) Logs in stream

Daily Gauge Height and Discharge of South River near Powassan for 1914

Drainage Area 322 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	Sec ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec ft	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft	Feet	Sec ft	Feet	Sec-ft.
1	.....	.....	.....	.....	.....	.....	30.08	1965	30.75	2310	25.25	292	25.67	362	23.83	105	23.83	105	24.00	125	24.25	155	25.67	362
2	.....	.....	.....	.....	.....	.....	29.79	1810	30.08	1970	25.08	265	25.17	280	24.00	120	23.83	105	23.92	115	24.29	159	26.71	586
3	.....	.....	.....	.....	.....	.....	29.66	1745	29.42	1620	25.08	265	24.83	228	24.00	120	23.83	105	23.83	105	24.29	159	26.88	630
4	.....	.....	.....	.....	.....	.....	27.91	960	29.25	1495	25.00	254	24.54	190	23.92	115	23.83	105	23.92	115	24.37	170	26.58	555
5	.....	.....	.....	.....	.....	.....	27.00	660	29.04	1380	24.92	240	24.42	175	23.92	115	23.83	105	23.75	95	24.88	237	26.17	464
6	.....	.....	.....	.....	.....	.....	26.63	567	28.83	1290	25.08	265	24.33	165	23.83	105	24.08	132	23.67	90	25.00	254	25.67	362
7	.....	.....	.....	.....	.....	.....	26.31	495	28.63	1215	25.00	254	24.00	120	23.83	105	26.08	445	23.67	90	24.88	237	25.50	335
8	.....	.....	.....	.....	.....	.....	26.46	428	28.42	1140	24.92	240	23.92	115	23.83	105	26.00	427	23.75	95	24.79	221	25.25	292
9	.....	.....	.....	.....	.....	.....	26.83	615	28.29	1090	24.92	240	23.83	105	23.83	105	25.58	350	23.88	110	24.58	195	25.04	260
10	.....	.....	.....	.....	.....	.....	26.50	535	28.08	1030	24.83	228	23.92	115	23.83	105	25.17	280	24.29	160	24.42	175	25.00	254
11	.....	.....	.....	.....	24.5	185	26.63	567	28.00	1000	24.75	218	23.83	105	24.08	132	24.88	237	24.75	218	24.38	171	24.83	228
12	.....	.....	.....	.....	24.5	185	26.71	586	27.83	940	24.83	228	24.00	120	24.42	175	24.50	185	24.83	228	24.71	212	24.79	221
13	.....	.....	.....	.....	24.5	185	26.42	520	27.58	845	24.67	206	24.00	120	24.25	155	24.33	165	24.71	212	24.79	221	24.75	218
14	.....	.....	.....	.....	24.5	185	26.42	520	27.33	780	24.67	206	23.92	115	24.25	155	24.25	155	24.54	190	24.90	240	24.67	206
15	.....	.....	.....	.....	24.5	185	26.75	595	27.08	645	24.67	206	23.83	105	24.50	185	24.17	194	24.42	175	24.75	216	24.54	190
16	.....	.....	.....	.....	24.58	195	27.79	740	26.33	495	24.67	206	23.83	105	24.50	185	24.08	132	24.17	194	26.83	615	24.50	185
17	.....	.....	.....	.....	25.12	273	28.38	1140	26.42	520	24.67	206	23.83	105	24.33	165	24.08	132	24.13	139	26.54	545	24.50	185
18	.....	.....	.....	.....	25.0	254	29.96	1900	26.33	495	24.83	228	23.75	95	24.25	155	24.08	132	24.33	165	26.00	427	24.46	180
19	.....	.....	.....	.....	25.0	254	31.54	2720	25.92	410	24.58	195	23.75	95	24.00	125	24.08	132	24.25	155	25.75	379	24.42	175
20	.....	.....	.....	.....	25.0	254	33.50	3960	25.17	280	24.67	206	23.75	95	23.96	117	24.25	155	24.25	155	25.42	322	24.42	175
21	.....	.....	.....	.....	25.0	254	32.17	3080	25.68	265	24.50	185	23.75	95	23.87	110	24.25	155	24.17	194	25.25	292	24.42	175
22	.....	.....	.....	.....	25.0	254	31.00	2430	25.17	280	24.54	190	23.50	70	23.92	115	24.13	139	24.17	194	25.00	254	24.42	175
23	.....	.....	.....	.....	25.0	254	30.37	2120	25.50	335	24.46	180	23.67	90	23.92	115	24.08	132	24.08	132	25.00	254	24.42	175
24	.....	.....	.....	.....	25.0	254	29.88	1860	25.50	335	24.42	175	23.83	105	23.96	120	24.08	132	24.08	132	24.92	242	24.42	175
25	.....	.....	.....	.....	25.0	254	29.42	1620	25.42	322	24.42	175	23.75	95	24.04	128	23.96	120	24.08	132	24.92	242	24.33	165
26	.....	.....	.....	.....	25.87	400	29.63	1730	25.67	362	24.25	155	23.71	90	24.00	125	23.83	105	24.17	194	25.08	267	24.33	165
27	.....	.....	.....	.....	26.86	620	29.63	1730	25.58	350	24.00	125	23.79	100	24.00	125	23.92	115	24.17	194	25.25	292	24.33	165
28	.....	.....	.....	.....	26.96	650	29.37	1590	25.42	322	24.08	132	23.75	95	24.00	125	24.00	125	24.17	194	25.25	292	24.33	165
29	.....	.....	.....	.....	27.58	845	31.83	2900	25.25	292	25.37	312	23.79	100	23.92	115	24.04	128	24.17	194	25.00	254	24.33	165
30	.....	.....	.....	.....	27.91	960	31.96	2960	25.33	308	26.12	450	23.79	100	23.92	115	24.08	132	24.17	194	.....	.....	24.33	165
31	.....	.....	.....	.....	28.21	1070	.....	.....	25.33	308	.....	.....	23.83	105	23.88	110	.....	.....	.....	.....	.....	.....	.....	.....

Monthly Discharge of South River near Powassan for 1914

Drainage Area 322 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	.....	.....	.....	.....	.....	.....	.....
February	.....	.....	.....	.....	.....	.....	.....
March	.....	.....	.....	.....	.....	.....	.....
April	3,960	428	1,502	12.30	1.33	4.66	5.20
May	2,310	265	788	7.18	.82	2.45	2.82
June	450	125	224	1.40	.39	.696	.78
July	362	70	128	1.12	.22	.398	.46
August	185	105	127	.57	.33	.395	.45
September	445	105	169	1.38	.33	.525	.58
October	228	90	157	.71	.28	.488	.56
November	615	155	265	1.91	.48	.823	.91
December	630	165	255	1.96	.51	.793	.91
The period	3,960	70	400	12.30	.22	1.24	12.67

Sturgeon River near Smoky Falls

Location —At the highway bridge near Smoky Falls Post Office, and 2 miles above the Smoky Falls, Township of Springer, Nipissing District.

Records Available —Monthly discharge measurements, Aug., 1912, to July, 1914. Daily gauge heights, Jan. 12 to 31, 1914, and March 15 to Dec. 31, 1914.

Drainage Area —2,135 square miles.

Gauge —Vertical steel staff with enamelled face, graduated in feet and inches, and attached to a wooden pile on the right upstream side of the bridge. The zero on the gauge (elevation 32.00) is referred to a bench mark (elevation 53.47) painted on a rock on the right bank of the river, about 175 feet above the bridge.

Channel —Straight for about 700 feet above and 2 miles below the station. The banks are fairly high, clean, sandy and not liable to overflow. The bed of the stream is composed of clay and sand, slightly shifting. The current is fast and smooth, flowing through six channels, formed by the five bridge piers.

Discharge Measurements —Made from highway bridge with a large Price current meter.

Control —A dam is located at the falls, 2 miles below the station, which is used for log driving. This dam is closed only on Sundays, for a period of 2 or 3 months in the year.

Winter Flow —During the winter months the river is covered with ice, and measurements are made through the ice to determine the winter discharge.

Observer —A. Pineault, Smoky Falls, Ont.

Discharge Measurements of Sturgeon River near Smoky Falls in 1912-3-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1912							
Aug. 5 (a)	Roberts. E	.....	1722	1.08	33.80	1869	.....
Sept. 9....	"	.....	1621	0.95	33.30	1543	.....
Oct. 8 (a)	"	.....	1723	1.05	33.80	1800	.....
Nov. 10....	"	.....	1913	1.59	34.70	3042	.....
Dec. 7....	"	.....	1764	1.17	34.00	2060	.....
1913							
Jan. 11....	"	.....	1755	1.05	33.60	1843	.....
Feb. 7....	"	.....	1423	0.88	32.30	1259	.....
Mar. 12....	"	.....	1412	0.79	32.10	1121	.....
April 19....	"	.....	2185	2.39	36.00	5233	.....
June 7....	Murray, W. S ..	210	2311	2.69	36.60	6129	.....
July 6 (a)	"	193	2007	1.06	35.20	2135	.....
Aug. 6....	"	210	1676	0.95	33.60	1594	.....
Sept. 7 (a)	"	193	1578	0.54	33.20	856	.....
Oct. 16....	"	193	1654	0.75	33.50	1148	.....
Nov. 15....	"	210	2140	2.04	35.80	4195	.....
Dec. 10....	"	210	2269	1.51	35.00	3642	.....
1914							
Feb. 10....	"	.....	1723	1.13	33.75	1960	.....
Mar. 11....	"	193	1580	0.83	33.10	1313	.....
April 4....	"	193	1675	1.02	33.58	1710	.....
May 9....	"	193	2886	3.69	39.33	10616	.....
June 7 (b)	"	210	2027	1.81	35.20	3683	.....
July 11....	"	193	1717	1.12	33.83	1976	.....

(a) Gauge height affected by backwater from closed dam
(b) Logs on control

Daily Gauge He'ght and Discharge of Sturgeon River near Smoky Falls for 1914

Drainage Area 2,135 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	.....	.....	.....	.....	.....	.....	33.83	2180	39.91	11570	36.25	5520	34.00	2380	34.08	2500	33.00	1240	32.42	720	34.00	2380	34.00	2380
2	.....	.....	.....	.....	.....	.....	33.75	2070	39.75	11310	36.08	5260	34.08	2500	34.33	2810	33.33	1590	32.75	1100	34.00	2380	34.33	2810
3	.....	.....	.....	.....	.....	.....	33.66	1970	39.58	11030	35.83	4900	34.33	2810	34.25	2710	33.58	1860	33.00	1240	34.17	2600	34.58	3140
4	.....	.....	.....	.....	.....	.....	33.58	1860	39.50	10900	35.67	4650	34.25	2710	34.17	2600	33.75	2070	33.17	1400	34.33	2810	34.58	3140
5	.....	.....	.....	.....	.....	.....	33.50	1770	39.46	10810	35.42	4200	34.25	2710	34.00	2380	33.83	2180	33.17	1400	34.50	3025	34.45	2970
6	.....	.....	.....	.....	.....	.....	33.42	1680	39.42	10750	35.33	4150	33.83	2180	34.25	2710	33.75	2070	33.25	1490	34.67	3250	34.33	2810
7	.....	.....	.....	.....	.....	.....	33.33	1590	39.54	10950	35.17	3920	34.75	3350	34.00	2380	33.83	2180	33.42	1680	34.75	3350	34.25	2710
8	.....	.....	.....	.....	.....	.....	33.33	1590	39.58	11030	35.08	3800	34.25	2710	33.67	1970	33.75	2070	33.42	1680	34.83	3460	34.17	2600
9	.....	.....	.....	.....	.....	.....	33.42	1680	39.46	10810	35.00	3700	33.67	1970	33.67	1970	34.00	2380	33.50	1770	34.83	3460	34.08	2500
10	.....	.....	.....	.....	.....	.....	33.42	1680	39.25	10560	34.92	3590	34.25	2710	33.50	1770	34.00	2380	33.58	1860	34.75	3350	34.00	2380
11	.....	.....	.....	.....	.....	.....	33.50	1770	39.13	10400	34.83	3460	34.08	2500	33.58	1860	34.00	2380	33.67	1970	34.67	3250	33.92	2270
12	33.75	2070	.....	.....	.....	.....	33.58	1860	39.00	10160	34.75	3350	34.08	2500	34.17	2600	33.92	2270	33.67	1970	34.67	3250	33.83	2180
13	33.75	2070	.....	.....	.....	.....	33.50	1770	38.71	9650	34.83	3460	33.67	1970	33.83	2180	33.75	2070	33.75	2070	34.58	3140	33.83	2180
14	33.75	2070	.....	.....	.....	.....	33.58	1860	38.46	9210	35.08	3800	34.67	3250	33.42	1680	33.42	1680	33.00	1240	34.33	2810	33.75	2070
15	33.75	2070	.....	.....	33.25	1490	33.75	2070	38.29	8950	34.67	3250	34.75	3350	33.33	1590	33.58	1860	33.83	2180	34.42	2925	33.75	2070
16	33.83	2180	.....	.....	33.25	1490	33.83	2180	38.09	8600	34.58	3140	34.67	3250	33.25	1490	33.58	1860	33.92	2270	34.83	3460	33.67	1970
17	33.75	2070	.....	.....	33.25	1490	34.13	2550	37.83	8270	34.33	2810	34.75	3350	33.33	1590	33.75	2070	34.00	2380	34.67	3250	33.58	1860
18	33.75	2070	.....	.....	33.25	1490	34.33	2810	37.67	8000	34.33	2810	34.67	3250	33.58	1860	33.92	2270	34.08	2500	34.00	2380	33.50	1770
19	33.66	1970	.....	.....	33.25	1490	35.13	3880	37.50	7650	34.25	2710	34.75	3350	33.67	1970	33.83	2180	34.17	2600	34.00	2380	33.42	1680
20	33.75	2070	.....	.....	33.16	1400	35.42	4250	37.25	7200	34.25	2710	34.67	3250	33.75	2070	33.75	2070	34.25	2710	34.00	2380	34.00	2380
21	33.66	1970	.....	.....	33.25	1490	35.21	3980	37.00	6750	34.08	2500	34.33	2810	34.17	2600	33.67	1970	34.25	2710	34.00	2380	34.00	2380
22	33.66	1970	.....	.....	33.16	1400	35.33	4150	36.83	6480	34.00	2380	34.33	2810	33.67	1970	33.58	1860	34.25	2710	34.88	3530	34.00	2380
23	33.66	1970	.....	.....	33.16	1400	35.38	4200	36.67	6170	34.00	2380	34.42	2925	33.50	1770	33.42	1680	34.17	2600	34.00	2380	33.92	2270
24	33.66	1970	.....	.....	33.16	1400	35.58	4500	36.42	5780	34.08	2500	34.42	2925	33.25	1490	33.25	1490	34.08	2500	34.00	2380	33.83	2180
25	33.66	1970	.....	.....	33.16	1400	35.75	4770	36.25	5530	34.00	2380	34.42	2925	33.17	1400	33.08	1320	34.17	2600	33.92	2270	33.75	2070
26	33.66	1970	.....	.....	33.25	1490	36.71	6250	36.17	5400	34.00	2380	34.42	2925	33.00	1240	33.00	1240	34.17	2600	33.92	2270	33.67	1970
27	33.66	1970	.....	.....	33.25	1490	37.71	7950	36.17	5400	33.83	2180	34.33	2810	33.00	1240	33.00	1240	34.17	2600	34.00	2380	33.75	2070
28	33.66	1970	.....	.....	33.25	1490	38.00	8430	36.17	5400	33.92	2270	34.25	2710	32.92	1150	32.92	1150	34.08	2500	33.92	2270	33.67	1970
29	33.66	1970	.....	.....	33.33	1580	39.00	10160	36.17	5400	34.08	2500	34.17	2600	32.92	1150	32.67	940	34.08	2500	33.92	2270	33.75	2070
30	33.66	1970	.....	.....	33.58	1860	39.58	11100	36.42	5780	34.08	2500	34.50	3025	32.92	1150	32.42	720	34.08	2500	33.83	2180	33.75	2070
31	33.66	1970	.....	.....	33.75	2070	.....	.....	36.42	5780	.....	.....	36.67	3250	32.92	1150	.....	.....	34.00	2380	.....	.....	33.67	1970

Monthly Discharge of Sturgeon River near Smoky Falls for 1914

Drainage Area 2,135 Square Miles

Month	Discharge in Second-feet.			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area.
January							
February							
March							
April	11,100	1,590	3,618	5.20	.74	1.69	1.89
May	11,570	5,400	8,441	5.42	2.53	3.95	4.55
June	5,520	2,180	3,305	2.59	1.02	1.55	1.73
July	3,350	1,970	2,831	1.57	.92	1.325	1.52
August	2,810	1,150	1,903	1.32	.54	.891	1.03
September	2,380	720	1,811	1.11	.34	.847	.95
October	2,710	720	2,078	1.27	.34	.973	1.12
November	3,530	2,180	2,787	1.65	1.02	1.305	1.45
December	3,140	1,680	2,299	1.47	.79	1.077	1.25
The period	11,570	720	3,236	5.42	.34	1.516	15.49

Wahnapitae River near Wahnapitae

Location —At the falls known as Timmins Chute, 6 miles above the village of Wahnapitae. The old cross-section was located on the C. P. Ry. bridge, in the Village of Wahnapitae, 2 miles above the Wahnapitae Power Plant, Township of Dryden, Sudbury District.

Records Available —Monthly discharge measurements, Aug., 1912, to Nov., 1914.

Drainage Area —910 square miles.

Gauge —A bench mark gauge (elevation 30.00) is located on a prominent rock at the edge of the falls, on the right bank of the river, and is distinguished by a painted arrow point.

Channel —Straight for about 500 feet above and 100 feet below to a 14-foot fall. Both banks are high, rocky, wooded, and will not overflow. The bed of the stream is composed of clay and gravel, which is slightly shifting. The current is fast, and flows through one channel at all stages of the river.

Discharge Measurements —Made from a boat with a large Price current meter.

Winter Flow —The river is covered with ice during the winter months, and measurements are made through the ice to determine the winter discharge.

Discharge Measurements of Wahnapitae River near Wahnapitae in 1912-3-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1906							
Jan. 23....	.....	.....	.....	.....	.....	826	0.91
1912							
Aug. 7....	Roberts, E.....	.....	2060	0.88	32.00	1807	1.98
Sept. 10....	"	.....	2090	0.95	32.20	1983	2.18
Oct. 9....	"	.....	2060	0.87	32.00	1794	1.97
Nov. 11....	"	.....	2115	0.91	32.40	1908	2.10
Dec. 9....	"	.....	2075	0.91	32.10	1887	2.08
1913							
Jan. 12....	"	149	2060	0.86	32.00	1776	1.95
Feb. 9....	"	149	1911	0.69	31.00	1329	1.46
Mar. 13....	"	149	1951	0.79	31.20	1553	1.71
May 8....	"	149	2462	2.12	34.70	5239	5.75
June 9....	Murray, W. S...	149	2140	1.36	32.10	2915	3.20
July 5....	" ...	149	2135	0.65	32.50	1408	1.55
Aug. 11....	" ...	149	2118	0.47	32.40	981	1.08
Sept. 6....	" ...	149	2149	0.55	32.70	1200	1.32
Oct. 17....	" ...	149	2097	0.45	32.20	977	1.06
Nov. 17....	" ...	149	2097	0.82	32.20	1725	1.90
Dec. 11....	" ...	149	2131	0.47	32.10	920	1.01
1914							
Jan. 12....	" ...	149	2047	0.21	32.00	544	0.60
Mar. 12?(a)	" ...	50	160	6.14	25.12	985	1.08
May 11....	"	.....	2216	1.56	27.71	3456	3.80
June 8....	" ...	149	1195	3.37	28.07	4025	4.42
July 13....	" ...	125	786	1.57	27.07	1237	1.36
Aug. 13....	" ...	115	682	1.33	26.10	909	1.00
Sept. 14....	" ...	110	655	1.08	25.80	711	0.78
Oct. 9....	" ...	111	675	1.12	25.70	753	0.82
Nov. 7....	" ...	112	658	1.06	25.60	698	0.77

(a) New section established. The measurement at the old section affected by backwater from dam at Wahnapitae Power Plant.

Vermilion River near White Fish

Location —At the old highway bridge, 50 feet above the rapids; 300 feet north of the C. P. Ry. Bridge, and 2 miles east of the Town of White Fish, Township of Graham, Sudbury District.

Records Available —Monthly discharge measurements, Aug., 1913, to July, 1914.

Drainage Area —1,900 square miles.

Gauge —A bench mark gauge (elevation 40.00) located on the downstream side of a wooden stringer on the bridge, 70 feet from the right abutment. It is referred to a bench mark (elevation 38.39) painted on a rock on the right bank, 12 feet from the right abutment of the highway bridge.

Channel —Straight for about 300 feet above and 700 feet below the station. Both banks are high, rocky and wooded, not liable to overflow. The bed of the stream is rocky and permanent. The current is swift, two channels existing at all stages, on account of the centre pier of the bridge.

Discharge Measurements —Made from the highway bridge with a large Price current meter.

Control —Log jams sometimes occur on the rapids during low flows, which cause backwater at the station.

Winter Flow —On account of the swift current, the channel remains open during the winter months, ice sometimes forming at the banks.

Discharge Measurements of Vermilion River near White Fish in 1913-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1913							
Aug. 7....	Murray, W. S...	183	708	1.09	27.40	773	0.41
Sept. 8....	"	180	614	0.59	26.80	325	0.17
Oct. 18....	"	180	675	0.82	27.20	559	0.29
Nov. 18....	"	186	978	1.98	29.00	2014	1.06
Dec. 12....	"	188	887	2.13	28.50	1888	0.99
1914							
Jan. 13....	"	180	690	0.85	27.30	586	0.31
Feb. 12....	"	188	677	0.74	27.20	501	0.26
April 6....	"	188	825	1.67	28.17	1379	0.73
May 12....	"	205	1468	4.79	31.50	7027	3.70
June 9....	"	200	1287	3.74	30.50	4814	2.53
July 14....	"	160	780	1.47	27.85	1147	0.60

Spanish River at Espanola

Location —At the highway bridge, about 200 yards below the falls and about the same distance below the Spanish River Pulp and Paper Mill, in the Town of Espanola, Township of Merrit, Sudbury District.

Records Available —Monthly discharge measurements, March to Dec., 1914.

Drainage Area —6,949 square miles.

Gauge —A bench mark gauge (elevation 50.00) painted on the bottom chord of the bridge, on the downstream side, 5 feet to the right of the centre pier.

Channel —Above the station, the water from the falls and power-house flows into a pool about 700 feet wide and then narrows down to 220 feet at the bridge, thence flowing straight for about 1,000 feet. Both banks are high, rocky, wooded, and will not overflow. The bed of the stream is composed of clay and boulders, practically permanent. The current is fast, one channel existing at low stages. At high stages the stream flows through two channels, separated by the centre pier of the bridge.

Discharge Measurements —Made from the highway bridge with a large Price current meter.

Control —The Spanish River Pulp and Paper plant, 200 yards above, uses all the water coming down the river during the summer, discharging through the tail race and past the section. The river is used throughout the spring and summer for log driving.

Winter Flow —Ice forms about 1 mile below the station, but remains open at the section during the entire year.

Discharge Measurements of Spanish River at Espanola in 1914

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1914							
Mar. 13....	Murray, W. S...	200	1620	1.52	21.90	2470	.36
April 7....	" ...	222	2867	1.53	23.50	4377	.63
May 13....	" ...	222	4736	3.85	31.09	18210	2.62
June 9....	" ...	231	3492	2.22	25.80	7768	1.12
July 14....	" ...	210	2761	1.23	23.00	3396	.49
Aug. 14....	" ...	210	2530	0.58	21.90	1484	.21
Sept. 15 (a)	" ...	225	2521	0.76	21.85	1923	.28
Oct. 10....	" ...	215	2381	0.81	21.17	1929	.28
Nov. 9....	" ...	211	2610	1.28	22.33	3153	.45
Dec. 10....	" ...	220	2880	1.43	23.58	4126	.59

(a) Log jam

Mississagi River at Mississagi

Location—At the C. P. Ry. Bridge, near Mississagi Flag Station, Mississagi Indian Reserve, four miles west of the Town of Blind River, Township of Cobden, Algoma District.

Records Available—Monthly discharge measurements, July 1913, to Dec., 1914.

Drainage Area—3,522 square miles.

Gauge—The elevation of the surface of the water is ascertained by means of a level, from a bench mark (elev. 20.00) established on a rock, on the left bank of the river, 600 feet above the bridge and 100 feet above the rapids.

Channel—Straight for about 400 feet above and 2,000 feet below the station. Both banks are high, rocky, wooded, and will not overflow. The bed of the stream is composed of rock and is permanent. The current is swift, flowing through one channel at low stages and two channels during high water periods.

Discharge Measurements—Made from the railway bridge with a large Price current meter.

Control—Wind levels from Lake Huron cause backwater at this station.

Winter Flow—The river is covered with ice during the winter months, and measurements are made through the ice to determine the winter discharge.

Discharge Measurements of Mississagi River at Mississagi (a) in 1913-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1913							
July 7....	Murray, W.	202	2004	2.18	29.50	4395	1.24
Aug. 9....	"	192	2010	1.64	29.40	3343	0.95
Sept. 9....	"	145	1951	0.65	28.90	1282	0.36
Oct. 20....	"	140	1843	1.29	28.40	2526	0.72
Nov. 19....	"	142	1889	1.90	28.50	3707	1.05
1914							
Jan. 14....	"	142	1843	0.60	28.20	1109	0.31
Feb. 13....	"	140	1785	1.27	28.00	2302	0.65
Mar. 13....	"		1785	1.31	12.35	2361	0.67
May 13....	"		2302	8.14	18.92	18733	5.31
June 9....	"		1976	3.15	15.42	6226	1.77
July 14....	"	140	1907	1.72	14.21	3282	0.93
Aug. 14....	"	140	1884	0.82	12.07	1549	0.44
Sept. 15....	"	142	1831	0.95	12.57	1741	0.49
Oct. 10....	"	140	1802	0.70	11.87	1299	0.37
Nov. 9....	"	142	1878	1.41	13.02	2645	0.75
Dec. 10....	"	140	1723	1.34	11.67	2306	0.65

(a) This station is seriously affected by wind levels on Lake Huron, which cause backwater at point of measurement.

Montreal River at Latchford

Location.—At the Temiskaming and Northern Ontario Railway Bridge, 300 feet below the Government Dam, in the Town of Latchford, Township of Coleman, Temiskaming District.

Records Available.—Monthly discharge measurements, August to December, 1914. Daily gauge heights, April 1st to Dec. 31st, 1914.

Drainage Area.—Not measured.

Gauge.—Vertical steel staff, located on the left downstream side of the Government Dam. This is a Dominion Government gauge graduated to feet and hundredths. The zero on the gauge (elev. 892.43) is referred to a bench mark (elev. 912.42) which is painted with red paint near the centre of the dam.

Channel.—Straight for about 300 feet above and 300 feet below the station. The banks are high, rocky, and will not overflow. The bed is composed of sand and rock, slightly shifting. The river is fast and flows through two channels at low stages and three channels during high water periods.

Discharge Measurements.—Made from the downstream side of the bridge with a large Price current meter.

Control.—The operation of the Government Dam above causes fluctuations at the section and interferes with the natural flow of the river.

Winter Flow.—The river is open at the station during the winter months, but frozen above the dam and below the section.

Accuracy.—As only a few discharge measurements were made since establishment of the station, there are not sufficient data to compute the daily discharges. Tables will be prepared as soon as sufficient records are available.

Observer.—Geo. Schneider, Latchford, Ontario.

Discharge Measurements of Montreal River at Latchford in 1914

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
Aug. 10....	Murray, W. S...	210	310	5.96	.....	1846	.....
Sept. 11....	"	207	270	6.03	.....	1627	.....
Oct. 7....	"	180	220	4.58	.....	1009	.....
Nov. 4....	"	208	237	4.01	.....	951	.....
Dec. 7....	"	237	252	2.53	.....	638	.....

Blanche River near Englehart

Location —At the highway bridge near the High Falls, 3½ miles northwest of the Town of Englehart, Township of Evanturel, Temiskaming District.

Records Available —Monthly discharge measurements, Aug. to Dec., 1914. Daily gauge heights, Oct. 8th to Dec. 31st, 1914.

Drainage Area —230 square miles.

Gauge —Vertical steel staff with enamelled face, graduated in feet and inches, and located on the southwest corner of the wing wall of the bridge. The zero on the gauge (elev. 10.00) is referred to a bench mark (elev. 23.29), painted on a prominent rock on the right bank, 75 feet below the bridge.

Channel —At a point 200 feet above the station, the river curves from the right and then flows straight up to a point 700 feet below the station. Both banks are high, rocky, wooded, and will not overflow. The bed of the stream is composed of clay, practically permanent. The current is very slow, flowing through 2 channels at low stages and 3 channels during high water periods.

Discharge Measurements —Made from the highway bridge with a large Price current meter.

Control —A temporary dam is built above the station during the summer months. This dam is used for storing water during the period when the river is used for log driving. The gauge heights at the section are therefore affected during the storage and log driving periods.

Winter Flow —During the winter months the river is covered with ice, and measurements are made through the ice to determine the winter discharge.

Accuracy —As only a few discharge measurements were made since establishment of the station, there are not sufficient data to compute the daily discharges. Tables of daily gauge heights, daily discharges and monthly discharges will be prepared as soon as sufficient records are available.

Observer —W. Antram, Englehart, Ont.

Discharge Measurements of Blanche River near Englehart in 1914

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1914							
Aug. 12....	Murray, W. S ..	98	711	0.42	11.58	303	.....
Sept. 13....	" ..	103	685	0.27	11.07	197	.....
Oct. 8 (a)	" ..	96	637	0.18	10.29	112	.....
Nov. 6....	" ..	94	668	0.20	10.92	134	.....
Dec. 9 (b)	" ..	60	570	0.15	10.75	87	.....

(a) Low water reading unreliable. A wading section will be located for low water measurements

(b) Ice measurements, taken 150 ft. below gauge.

Frederickhouse River at Frederickhouse

Location —Midway between the highway bridge and railway bridge, 6 miles northwest of Cochrane, or 1½ miles south of the G. T. Pacific Ry. Bridge, in the Town of Frederickhouse, Township of Clute, Temiskaming District.

Records Available —Monthly discharge measurements, April, Aug., Sept., and Nov., 1914.

Drainage Area —1,252 square miles.

Gauge —A bench mark gauge (elev. 20.00) painted on a rock located on the left bank of the river at the section.

Channel —Straight for about 1 mile above and 400 yards below the station. The banks are very high, thickly wooded, and will not overflow. The bed of the stream is composed of clay and boulders, slightly shifting. The current is very swift, flowing through one channel at all stages.

Discharge Measurements —Made by wading with a large Price current meter.

Control —An old broken dam is located about 100 feet above the station, which interferes with the measurements.

Accuracy —Only 2 measurements were made at this new station, but are not very reliable on account of the broken dam and slush ice existing at the section.

Discharge Measurements of Frederickhouse River at Frederickhouse in 1914

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
April 4....	McLennan, C. C.	55	194.1	1.37	.....	266	.21
Aug. 11....	Murray, W. S...	160	201.0	1.50	13.50	302	.24
Sept. 12 (a)	"	53	73.5	.52	15.05	39	.03
Nov. 5....	"	50	93.3	6.81	17.80	635	.51

(a) New section established

Seine River at Skunk Rapids

Location —About 200 feet above Skunk Rapids, and 1 mile upstream from the Canadian Northern Ry. bridge. One-half mile north of the C. N. Ry. tracks, and 1 mile west of La Seine Station, in the District of Rainy River.

Records Available —Discharge measurements, Aug. to Dec., 1914. Daily gauge heights, Sept. 22 to Dec. 31, 1914.

Drainage Area —3,483 square miles.

Gauge —Vertical steel staff gauge with enamelled face, graduated in feet and inches, and located near La Seine station, on the C. N. Ry. The zero on the gauge is at an elevation of 87.73 feet, which is referred to a bench mark (assumed elevation 100.00) painted on a large boulder, on the right bank of the river, 6 feet from a 6-inch poplar tree used as a final point for soundings. The initial point is on the left bank and consists of a 2-inch spruce tree, blazed and marked I.P. with white paint. "H. E. P. Comm." is painted on the rock directly below the spruce tree.

Channel —Straight for about 500 feet above and 200 feet below the station to the rapids. The right bank of the river curves into a point at the rapids forming a narrow channel. The velocity of the river is slow and the banks are high, rocky and wooded. This land has been burnt over, but most of the trees are still standing. The bed of the stream is sandy and clean, with a few boulders near the right bank. One channel exists at all stages.

Discharge Measurements —Made from canoe by means of a Price small current meter.

Accuracy —As only a few discharge measurements were made up to the present time, there are not sufficient discharge measurements to make accurate estimates of the daily discharge. Tables of daily gauge height, daily discharge and monthly discharge will be prepared when records are available.

Observer —C. Rose, La Seine, Ont.; P.O., Banning, Ont.

Discharge Measurements of Seine River at Skunk Rapids in 1914

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1914							
Aug. 14....	Taylor, J. R.....	194.9	2000	.66	8.84	1329	.....
Sept. 22....	"	199.4	2079	.804	9.33	1674	.....
Oct. 13....	"	198.5	2061	.73	9.15	1522	.....
Nov. 10....	"	195.4	2000	.642	8.88	1284	.....
Dec. 5 (a)	"	185	1849	.57	8.25	1059	.....

(a) Boat and ice measurement. River partly frozen.

Daily Gauge Height and Discharge of Seine River at Skunk Rapids for 1914

Drainage Area, 3,483 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.08	1,460	8.92	1,320	.....	.....
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.08	1,460	8.90	1,302	.....	.....
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.06	1,442	8.92	1,320	.....	.....
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.06	1,442	8.91	1,311	.....	.....
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.06	1,442	8.90	1,302	.....	.....
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.06	1,442	8.90	1,302	.....	.....
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.06	1,442	8.90	1,302	.....	.....
8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.04	1,425	8.90	1,302	.....	.....
9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.04	1,425	8.90	1,302	.....	.....
10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.06	1,442	8.88	1,285	.....	.....
11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.13	1,503	8.85	1,260	.....	.....
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.13	1,503	8.83	1,240	.....	.....
13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.15	1,520	8.85	1,260	.....	.....
14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.15	1,520	8.85	1,260	.....	.....
15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.13	1,503	8.85	1,260	.....	.....
16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.11	1,485	8.84	1,250	.....	.....
17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.09	1,469	3.78	1,198	.....	.....
18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.07	1,450	8.77	1,190	.....	.....
19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.03	1,415	8.77	1,190	.....	.....
20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.00	1,390	8.75	1,171	.....	.....
21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8.98	1,372	8.74	1,162	.....	.....
22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.33	1,675	8.97	1,362	8.73	1,154	.....	.....
23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.27	1,625	9.03	1,415	8.73	1,154	.....	.....
24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.26	1,616	9.04	1,425	8.71	1,138	.....	.....
25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.27	1,625	9.04	1,425	8.70	1,130	.....	.....
26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.20	1,562	9.02	1,407	8.69	1,121	.....	.....
27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.17	1,537	9.00	1,390	8.67	1,104	.....	.....
28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.16	1,530	8.98	1,372	8.67	1,104	.....	.....
29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.11	1,485	8.96	1,352	8.67	1,104	.....	.....
30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.08	1,460	8.95	1,345	8.67	1,104	.....	.....
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8.94	1,337	.....	.....	.....	.....

Monthly Discharge of Seine River at Skunk Rapids for 1914

Drainage Area, 3,483 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum.	Mean.	Depth in Inches on Drainage Area
January	.....	.....	.....	.....	.....	.....	.....
February	.....	.....	.....	.....	.....	.....	.....
March	.....	.....	.....	.....	.....	.....	.....
April	.....	.....	.....	.....	.....	.....	.....
May	.....	.....	.....	.....	.....	.....	.....
June	.....	.....	.....	.....	.....	.....	.....
July	.....	.....	.....	.....	.....	.....	.....
August	.....	.....	.....	.....	.....	.....	.....
September	.....	.....	.....	.....	.....	.....	.....
October	1,520	1,337	1,431	0.44	0.38	0.411	0.47
November	1,320	1,104	1,220	0.38	0.32	0.350	0.39
December	.....	.....	.....	.....	.....	.....	.....
The period	.....	.....	.....	.....	.....	.....	.....

Turtle River at Mountain Rapids

Location —About 300 feet above Mountain Rapids, and about 8 miles from the Olive Mine. 12 miles from Mine Centre, which is on the C. N. Ry., in the Rainy River District.

Records Available —Monthly discharge measurements, Aug. to Dec., 1914. Daily gauge heights, Aug. 9 to Dec. 31, 1914.

Drainage Area —1,841 square miles.

Gauge —Vertical steel staff gauge with enamelled face, graduated in feet and inches, and fastened on a crib pier at the C. N. Ry. saw mill, 12 miles from the station. The gauge is located 1,000 feet south of the mouth of Little Turtle River, on the east shore of Little Turtle Lake. Zero on gauge (elevation 83.89) is referred to a bench mark established on a rock with white paint, on the left bank of the river, four feet south of a blazed pine tree, marked I.P. with white paint, which is used as the initial point for soundings. The elevation of this bench mark is 96.00, which is referred to another bench mark (assumed elevation 100.00) established on a rock with white paint, 35 feet north-east of the gauge, at the C. N. Ry. Mill at Mine Centre.

Channel —Straight for about 1,000 feet above and below the station, the water running slowly. The banks are high, wooded and rocky. The bed of the stream is sandy and clean, one channel existing at all stages.

Discharge Measurements —Made from a canoe with a small Price current meter.

Control —The river is used extensively for log driving, and the log jams in Otter Falls affect the section somewhat.

Accuracy —As only a few discharge measurements were made up to the present time, there are not sufficient data to make accurate computations of the daily discharge. Additional tables of daily gauge height, daily discharge and monthly discharge will be prepared and published when sufficient records are available.

Observer —W. R. Miller, Mine Centre, Ontario.

Discharge Measurements of Turtle River at Mountain Rapids in 1914

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1914							
Aug. 11....	Taylor, J. R.....	168.4	2947	.29	92.47	850	.....
Sept. 23....	"	167.8	2948	.407	92.43	1202	.....
Oct. 12....	"	169.1	3033	.412	92.93	1250	.....
Nov. 5....	"	168.1	2964	.39	92.58	1161	.....
Dec. 19 (a).	"	161.0	2518	.089	90.39	224	.....

(a) Ice measurement—jam at Otter Falls.

Manitou River at Devil's Cascades

Location —About 150 feet below the old dam, at the head of the Devil's Cascades, Rainy River District.

Records Available —Monthly discharge measurements, July to Dec., 1914. Daily gauge heights, July 15 to Nov. 31, 1914.

Drainage Area —440 square miles.

Gauge —An inclined steel staff, graduated in feet and inches, and located on the face of the old dam. The zero of the gauge is at an elevation of 139.38 feet referred to a bench mark (elevation 147.37) painted on a rock, 1 foot east of the initial point of soundings. Owing to the gauge not being vertical in the face plane, .03 feet per foot of staff reading is to be subtracted from the staff reading before adding to gauge zero for water levels.

Channel —Straight for about 150 feet above and 400 feet below the station. The right bank is high, rocky, wooded, and not liable to overflow, but the left bank is low and wooded, with a gradually rising bank, which is not liable to overflow unless the dam is operated. The bed of the stream is composed of rock, and the current is slow, one channel existing at all stages.

Discharge Measurements —Made from canoe or ice, by a small Price current meter.

Control —Several dams exist on the river between the section and Manitou Lake, which are not in operation at present. The operation of the dam just above the station causes fluctuations at the gauge.

Accuracy —As only a few discharge measurements were made, there are not sufficient data to make accurate computations of the daily discharge. Table of daily gauge height, daily discharge and monthly discharge will be prepared when sufficient records are available.

Observer —S. H. Baldwin, Box No. 250, Fort Francis, Ontario.

Discharge Measurements of Manitou River at Devil's Cascades in 1914

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
July 15....	McLennan, C. C..	110	494	.577	4.83	284	.....
Aug. 13....	Taylor, J. R.....	98.6	483	.56	4.69	271	.....
Sept. 19....	"	99.8	455	.47	4.40	214	.....
Oct. 11....	"	98.7	463	.506	4.52	234	.....
Nov. 3....	"	98.5	454	.48	4.45	219	.....
Dec. 17....	"	94.3	474	.43	4.35	194	.....

Daily Gauge Height and Discharge of Manitou River at Devil's Cascades for 1914

Drainage Area, 440 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.81	287	4.50	230	4.44	220	4.44	220	.....	.....
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.79	283	4.50	230	4.42	220	4.44	220	.....	.....
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.77	279	4.42	216	4.42	220	4.44	220	.....	.....
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.75	276	4.37	207	4.40	212	4.42	216	.....	.....
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.73	272	4.35	203	4.40	212	4.42	216	.....	.....
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.73	272	4.35	203	4.40	212	4.42	216	.....	.....
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.71	268	4.37	207	4.42	216	4.40	212	.....	.....
8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.71	268	4.37	207	4.44	220	4.35	203	.....	.....
9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.71	268	4.35	203	4.46	224	4.35	203	.....	.....
10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.71	268	4.35	203	4.48	227	4.33	199	.....	.....
11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.71	268	4.33	199	4.50	230	4.35	203	.....	.....
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.69	264	4.35	203	4.50	230	4.38	208	.....	.....
13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.69	264	4.37	207	4.50	230	4.42	216	.....	.....
14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.67	261	4.37	207	4.50	230	4.46	224	.....	.....
15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.87	298	4.67	261	4.35	203	4.48	227	4.50	230	.....	.....
16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.87	298	4.65	257	4.35	203	4.48	227	4.50	230	.....	.....
17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.92	307	4.65	257	4.37	207	4.46	224	4.50	230	.....	.....
18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.94	310	4.65	257	4.37	207	4.46	224	4.50	230	.....	.....
19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.94	310	4.62	252	4.40	212	4.48	227	4.50	230	.....	.....
20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5.00	321	4.62	252	4.40	212	4.48	227	4.50	230	.....	.....
21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5.04	329	4.62	252	4.39	210	4.50	230	4.50	230	.....	.....
22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5.04	329	4.60	248	4.42	216	4.50	230	4.50	230	.....	.....
23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5.00	321	4.60	248	4.42	216	4.50	230	4.48	227	.....	.....
24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.98	318	4.60	248	4.44	220	4.50	230	4.48	227	.....	.....
25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.98	318	4.60	248	4.44	220	4.50	230	4.48	227	.....	.....
26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.98	318	4.60	248	4.44	220	4.50	230	4.48	227	.....	.....
27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.96	314	4.60	248	4.44	220	4.48	227	4.50	230	.....	.....
28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.92	307	4.58	245	4.48	226	4.46	224	4.50	230	.....	.....
29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.90	303	4.56	241	4.48	226	4.46	224	4.50	230	.....	.....
30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.87	298	4.54	238	4.46	224	4.44	224	4.50	230	.....	.....
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.85	294	4.52	234	.....	.....	4.44	220	.....	.....	.....	.....

Monthly Discharge of Manitou River at Devil's Cascades for 1914

Drainage Area, 440 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January							
February							
March							
April							
May							
June							
July							
August	287	234	259	0.65	0.53	0.588	0.68
September	230	199	212	0.52	0.45	0.482	0.54
October	230	212	224	0.52	0.48	0.511	0.59
November	230	199	222	0.52	0.45	0.503	0.56
December							
The period	287	199	231	.65	.45	0.52	2.37

Footprint River at Rainy Lake Falls

Location —100 feet above the crest of the lowest fall, at the mouth of the Footprint River where it flows into the north-west bay of Rainy Lake, on Indian Reserve 17A, District of Rainy River.

Records Available —Monthly discharge measurements, July to Dec., 1914. Daily gauge heights, Sept. 18 to Dec. 31, 1914.

Drainage Area —588 square miles.

Gauge —Vertical steel staff gauge, graduated in feet and in inches, and attached to a poplar tree 26.2 feet from the initial point. The zero on the gauge (elevation 102.26) is referred to a bench mark painted on the ledge of a rock on right bank 6.7 feet upstream from initial point for soundings. Rod held on dot inside of circle marked B.M. in white paint (elevation 110.51).

Channel —About 40 feet above the station the channel curves to the left and then runs straight for about 140 feet, dropping into Rainy Lake. The banks are high, rocky, wooded, and not liable to overflow. The right bank has been burnt over. The bed of the river contains large boulders, and one channel exists at all stages.

Discharge Measurements —Made from canoe with small Price current meter. The initial point for soundings is marked Initial Point, H. E. P. C. on a rock ledge on the right bank, and 4.75 feet downstream from the point marked Initial Point, P. W. D., and 6.7 feet from the bench mark.

Control —Occasional operations of the dam at Footprint Lake cause fluctuations in the river at the gauge.

Accuracy —As only a few discharge measurements were made up to the present time, there are not sufficient data to make accurate computations of the daily discharge. Tables of daily gauge height, daily discharge, and monthly discharge will be prepared when sufficient records are available.

Observer —John Lyons, Fort Frances P. O.

Discharge Measurements of Footprint River at Rainy Lake Falls in 1914

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
July 14....	McLennan, C. C..	65.7	165	4.11	103.49	681	.....
Aug. 12....	Taylor, J. R.....	61	130	2.72	102.86	356	.....
Sept. 18....	"	54.3	101	2.38	102.38	242	.....
Oct. 10....	"	54.3	101	2.34	102.36	238	.....
Nov. 1....	"	45.9	57	1.83	101.47	105	.....
Dec. 17....	"	48.2	67	1.74	101.70	118	.....

Daily Gauge Height and Discharge of Footprint River at Rainy Lake Falls for 1914

Drainage Area, 588 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.38	242	101.47	106	.....	.....
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.38	242	101.45	102	.....	.....
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.38	242	101.45	102	.....	.....
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.36	238	101.45	102	.....	.....
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.36	238	101.45	102	.....	.....
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.36	238	101.45	102	.....	.....
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.36	238	101.45	102	.....	.....
8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.36	238	101.45	102	.....	.....
9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.36	238	101.45	102	.....	.....
10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.36	238	101.45	102	.....	.....
11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.36	238	101.45	102	.....	.....
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.35	235	101.45	102	.....	.....
13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.36	238	101.45	102	.....	.....
14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.36	238	101.45	102	.....	.....
15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.36	238	101.45	102	.....	.....
16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.36	238	101.45	102	.....	.....
17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.36	238	101.45	102	.....	.....
18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.38	242	102.36	238	101.45	102	.....	.....
19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.38	242	102.36	238	101.45	102	.....	.....
20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.34	233	102.36	238	101.45	102	.....	.....
21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.34	233	102.36	238	101.45	102	.....	.....
22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.38	242	102.36	238	101.45	102	.....	.....
23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.38	242	102.36	238	105.68	102	.....	.....
24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.38	242	102.36	238	105.68	102	.....	.....
25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.38	242	102.36	238	105.68	102	.....	.....
26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.38	242	102.36	238	105.68	102	.....	.....
27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.34	233	102.36	238	105.68	102	.....	.....
28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.38	242	102.36	238	105.68	102	.....	.....
29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.38	242	102.36	238	105.68	102	.....	.....
30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.38	242	102.36	238	105.68	102	.....	.....
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	102.36	238	.....	.....	.....	.....

Monthly Discharge of Footprint River at Rainy Lake Falls for 1914

Drainage Area 588. Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	.....	.....	.....	.....	.....	.....	.....
February	.....	.....	.....	.....	.....	.....	.....
March	.....	.....	.....	.....	.....	.....	.....
April	.....	.....	.....	.....	.....	.....	.....
May	.....	.....	.....	.....	.....	.....	.....
June	.....	.....	.....	.....	.....	.....	.....
July	.....	.....	.....	.....	.....	.....	.....
August	.....	.....	.....	.....	.....	.....	.....
September	242	238	238	0.41	0.40	0.405	.46
October	106	102	102	0.18	0.17	0.173	.19
November	.....	.....	.....	.....	.....	.....	.....
December	.....	.....	.....	.....	.....	.....	.....
The period	.....	.....	.....	.....	.....	.....	.....

Wabigoon River at Wabigoon Falls

Location —About 100 feet below the lowest fall on the Wabigoon River, and 3 miles from the mouth of the Wabigoon River discharging into the English River, District of Kenora.

Records Available —Monthly discharge measurements, June to Nov., 1914.

Drainage Area —1,026 square miles.

Gauge —Vertical steel staff with enamelled face, graduated in feet and inches and screwed to a 5-inch hewn spruce post, firmly wedged and braced to the left bank, about 200 feet above the metering station. The zero on the gauge (elevation 111.37) is referred to a bench mark (elevation 120.07) on a nail driven in a 4-inch tamarac stump located 2 feet upstream from the gauge. The initial point for soundings is on the right bank, painted I.P., S. 12° E on a blazed 5-inch poplar tree.

Channel —Straight for about ½ mile above and 100 feet below the station to the falls. Both banks are high, rocky, wooded, and will not overflow. The bed of the stream is composed of rock, with a few boulders and weeds at the right bank. The current is sluggish above the station, but swift just above the falls. There is a slight backwater at the left bank.

Discharge Measurements —Made from canoe and ice with a small Price current meter.

Discharge Measurements of Wabigoon River at Wabigoon Falls in 1914

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1914							
June 8....	McLennan, C. C.	248	3658	.91	114.88	3312	.....
July 17....	"	247.6	3458	.74	114.05	2569	.....
Aug. 4....	"	246	3220	.54	113.04	1732	.....
Sept. 14....	"	217	2957	.37	112.04	1103	.....
Nov. 8....	"	239.5	3081	.44	112.52	1374	.....
Dec. 21....	"	217	2907	.30	111.73	900	.....

Wabigoon River near Quibell

Location—About 200 feet above the second fall from the G. T. P. Ry. bridge which spans the first fall, or ½ mile north of the railway. One-half mile from Quibell station on the Grand Trunk Pacific Railway, Quibell Township, District of Kenora.

Records Available—Monthly discharge measurements, June to Nov., 1914. Daily gauge heights, Aug. 1 to Nov. 30, 1914.

Drainage Area.—1,612 square miles.

Gauge—Vertical staff gauge consisting of 9 feet of enamelled steel plate, graduated in feet and inches and screwed to a 5-inch hewn spruce post, firmly wedged and secured to a rock on the right bank of the river. The elevation of the zero mark is 24.26, which is referred to a bench mark (elevation 33.67) located just below the gauge.

Channel—Straight for about 1,200 feet above the station, where the stream enters from the right bank, making an angle of 90°. For about 200 feet below the station the river is straight and then narrows into a fall. The water is sluggish, and banks are high, rocky and wooded. There are a few boulders apparent in the bed of the stream. One channel exists at all stages.

Discharge Measurements—Made from a canoe by a small Price current meter.

Control—The Dryden Timber and Power Co. operate a dam and power plant at Dryden, on the Wabigoon River.

Accuracy—As only a few discharge measurements are made up to the present time, there are not sufficient data to make accurate estimates of the daily discharge.

Observer—D. C. Warner, Quibell, Ontario.

Discharge Measurements of Wabigoon River near Quibell in 1914

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1914							
June 4....	Binns, P. V.....	124	1484	1.82	95.32	2703	.....
July 18....	"	110	1258	1.20	93.34	1503	.....
Aug. 1 (a)	"	84.4	720	1.72	26.59	1237	.....
Sept. 17....	"	85.5	736	1.83	26.81	1347	.....
Oct. 5....	"	83.8	703	1.62	26.36	1138	.....
Nov. 11....	"	81.2	648	1.29	25.73	841	.....

(a) New section established

Daily Gauge Height and Discharge of Wabigoon River near Quibell for 1914

Drainage Area 1,612 Square Miles

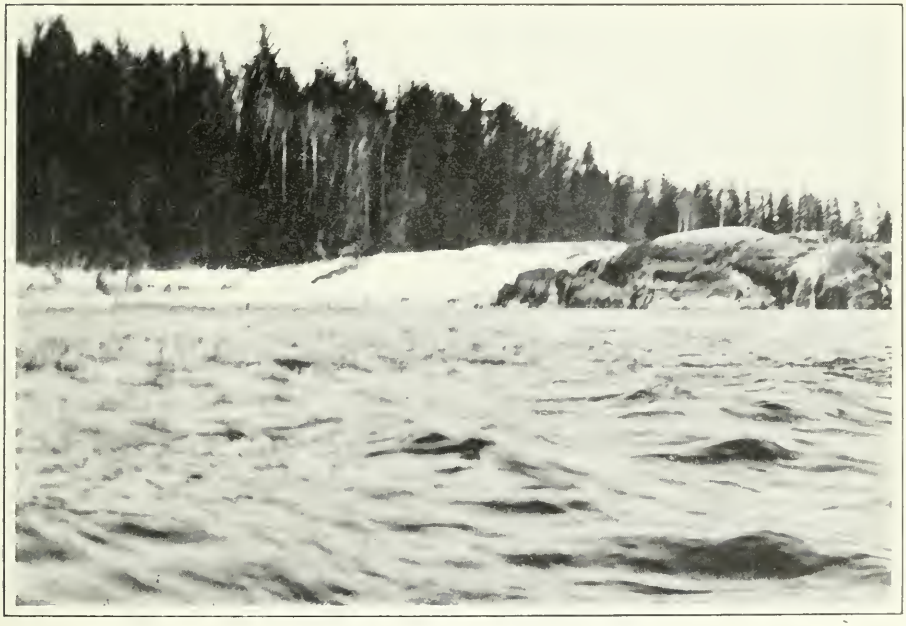
Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26.59	1,255	25.76	860	26.67	1,295	26.05	1,000	.....	.....
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26.54	1,230	25.75	855	26.59	1,255	26.05	1,000	.....	.....
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26.55	1,235	25.75	855	26.52	1,220	26.05	1,000	.....	.....
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26.51	1,215	25.74	845	26.50	1,210	26.05	1,000	.....	.....
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26.51	1,215	25.72	840	26.42	1,170	26.05	1,000	.....	.....
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26.50	1,210	25.68	825	26.39	1,155	26.02	985	.....	.....
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26.51	1,215	25.67	815	26.34	1,130	26.01	980	.....	.....
8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26.43	1,175	25.63	805	26.30	1,115	25.94	945	.....	.....
9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26.43	1,175	25.59	785	26.26	1,095	25.84	895	.....	.....
10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26.47	1,195	25.68	825	26.43	1,175	25.80	880	.....	.....
11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26.34	1,130	25.72	840	26.59	1,255	25.76	860	.....	.....
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26.22	1,075	25.83	890	26.67	1,295	25.75	855	.....	.....
13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26.18	1,055	25.84	895	26.68	1,300	25.76	860	.....	.....
14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26.18	1,055	25.89	920	26.68	1,300	25.76	860	.....	.....
15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26.18	1,055	25.93	940	26.68	1,300	25.76	860	.....	.....
16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26.17	1,050	26.09	1,015	26.67	1,295	25.76	860	.....	.....
17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26.17	1,050	26.77	1,340	26.59	1,255	25.83	890	.....	.....
18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26.09	1,015	27.26	1,580	26.58	1,250	25.80	880	.....	.....
19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26.05	985	27.51	1,705	26.43	1,175	25.76	860	.....	.....
20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26.01	980	27.47	1,680	26.42	1,170	25.76	860	.....	.....
21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25.97	955	27.26	1,580	26.26	1,095	25.75	855	.....	.....
22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25.93	940	27.12	1,504	26.26	1,095	25.72	840	.....	.....
23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25.97	955	27.09	1,495	26.25	1,090	25.68	825	.....	.....
24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25.89	920	27.17	1,535	26.24	1,085	25.68	825	.....	.....
25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25.84	895	27.18	1,540	26.25	1,090	25.67	815	.....	.....
26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25.80	880	27.24	1,570	26.14	1,035	25.67	815	.....	.....
27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25.82	885	27.17	1,535	26.10	1,020	25.67	815	.....	.....
28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25.80	880	27.93	1,910	26.09	1,015	25.66	810	.....	.....
29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25.76	860	26.77	1,340	26.09	1,015	25.68	825	.....	.....
30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25.76	860	26.70	1,305	26.09	1,015	25.66	810	.....	.....
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25.76	860	.....	.....	26.08	1,010	.....	.....	.....	.....

Monthly Discharge of Wabigoon River near Quibell for 1914

Drainage Area 1,612 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January							
February							
March							
April							
May							
June							
July							
August	1,255	860	1,050	0.78	0.53	0.651	0.75
September	1,910	785	1,181	1.19	0.49	0.732	0.81
October	1,300	1,010	1,160	0.81	0.63	0.719	0.83
November	1,000	810	885	0.62	0.50	0.549	0.61
December							
The period	1,910	785	1,069	1.19	0.49	0.66	3.00

Wabigoon River—Wainwright Falls



English River—Upper Sturgeon Falls

Eagle River at Eagle River

Location —At the highway bridge, 1,000 feet south of the C. P. Ry. crossing of the river, and above the Cascades, in the Township of Aubrey, Kenora District. This river is a branch of the Wabigoon River.

Records Available —Monthly discharge measurements, Jan. to Nov., 1914. Daily gauge heights, Feb. 12 to Dec. 31, 1914.

Drainage Area —933 square miles.

Gauge —Vertical steel staff gauge with enamelled face, graduated in feet and inches, and located on the south face of the bridge crib, near the south-east corner, next to the left bank of the river. The zero on the gauge (elevation 1,172.99) is referred to a bench mark (elevation 1,193.22) consisting of the head of a spike driven horizontally in the face of the water tank near the bridge, on the main line of the C. P. Ry. Another bench mark, at an elevation of 1,176.56 is painted on a rock, on the left bank, a few feet above the cross-section.

Channel —Straight for about 100 feet above the station, with the water running slowly. Below the section the channel is straight for about 20 feet, with swift water running to the fall over the Cascades. The banks are clean, high, rocky and not liable to overflow. The bed consists of solid rock and is practically permanent. At extreme high water the flow is cut up by the bridge piers, but under normal conditions the flow is all through one channel.

Discharge Measurements —Made from the highway bridge with a Price current meter.

Accuracy —This is nearly an ideal section. The sum of the differences between curve and measured discharges for same gauge heights is 3.09 per cent. of the sum of those measured discharges.

Observer —J. Nelson, Eagle River, Ontario.

Discharge Measurements of Eagle River at Eagle River in 1914

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1914							
Jan. 8....	McLennan, C. C.	36	114	1.85	1173.55	212	.....
Feb. 12....	"	35.5	109	1.81	1173.53	197	.....
Mar. 20....	"	35	108	1.72	1173.53	187	.....
" 26....	"	35	105	1.78	1173.49	189	.....
" 26....	"	35	105	1.79	1173.49	189	.....
" 27....	"	35	108	1.81	1173.51	197	.....
Apr. 25....	"	35	115	1.79	1173.66	206	.....
" 25....	"	35	115	1.76	1173.66	203	.....
June 9....	Carmichael, R. M.	86	190	3.83	1175.24	730	.....
" 9....	"	86	190	3.78	1175.24	721	.....
" 9....	"	86	190	3.83	1175.24	731	.....
" 9....	"	86	190	3.79	1175.24	724	.....
" 10....	"	87.5	200	4.14	1175.41	831	.....
" 10....	"	87.5	200	4.11	1175.41	824	.....
July 30....	"	84	194	3.70	1175.16	718	.....
" 31....	"	84	194	3.56	1175.11	689	.....
Sept. 2....	McLennan, C. C.	50	154	2.59	1174.41	398	.....
" 2....	"	50	154	2.59	1174.41	399	.....
" 3....	"	49.5	145	2.52	1174.28	365	.....
" 3....	"	49.5	145	2.52	1174.28	366	.....
" 18....	Binns, P. V.	52.5	158	3.08	1174.55	486	.....
" 23....	"	51.8	157	2.92	1174.59	459	.....
Oct. 7....	"	50.6	148	2.68	1174.47	399	.....
" 7....	"	50.6	148	2.68	1174.46	397	.....
Nov. 12....	"	46.1	143	2.61	1174.30	375	.....

Daily Gauge Height and Discharge of Eagle River at Eagle River for 1914

Drainage Area 933 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.
1	.....	.....	.....	....	1173.51	193	1173.50	191	1173.70	227	1174.65	477	1175.43	846	1175.16	689	1174.34	378	1174.49	423	1174.32	373	1174.26	355
2	.....	.....	.....	....	1173.53	196	1173.51	193	1173.68	224	1174.67	485	1175.43	883	1175.13	678	1174.30	367	1174.51	430	1174.36	388	1174.22	345
3	.....	.....	.....	....	1173.53	196	1173.52	194	1173.72	232	1174.72	502	1175.47	868	1175.16	689	1174.26	355	1174.49	423	1174.34	378	1174.22	345
4	.....	.....	.....	....	1173.53	196	1173.51	193	1173.81	250	1174.78	526	1175.41	831	1175.11	663	1174.20	340	1174.45	410	1174.36	388	1174.20	340
5	.....	.....	.....	....	1173.51	193	1173.51	193	1173.80	248	1174.80	533	1175.45	855	1175.09	654	1174.07	307	1174.41	398	1174.34	378	1174.20	340
6	.....	.....	.....	....	1173.51	193	1173.51	193	1173.84	256	1174.80	533	1175.49	883	1175.11	663	1174.20	340	1174.38	393	1174.32	373	1174.10	335
7	.....	.....	.....	....	1173.51	193	1173.51	193	1173.84	263	1174.80	533	1175.47	868	1175.09	654	1174.20	340	1174.38	393	1174.28	361	1174.18	335
8	.....	.....	.....	....	1173.53	193	1173.51	193	1173.93	275	1174.90	568	1175.45	855	1175.07	646	1174.18	335	1174.38	393	1174.32	373	1174.18	335
9	.....	.....	.....	....	1173.53	196	1173.51	193	1173.93	275	1175.24	730	1175.38	816	1174.99	609	1174.16	330	1174.36	388	1174.32	373	1174.16	330
10	.....	.....	.....	....	1173.53	196	1173.51	193	1173.97	284	1175.41	831	1175.30	765	1174.95	593	1174.18	335	1174.36	388	1174.32	373	1174.18	335
11	.....	.....	.....	....	1173.53	196	1173.51	193	1173.97	284	1175.49	883	1175.38	754	1174.95	584	1174.20	340	1174.38	393	1174.32	373	1174.18	335
12	.....	.....	1173.53	196	1173.51	193	1173.49	188	1173.97	284	1175.49	883	1175.36	805	1174.95	584	1174.24	351	1174.38	393	1174.24	351	1174.16	330
13	.....	.....	1173.55	198	1173.51	193	1173.48	186	1173.95	278	1175.59	948	1175.41	831	1174.95	584	1174.28	361	1174.41	398	1174.22	345	1174.16	330
14	.....	.....	1173.53	196	1173.51	193	1173.49	188	1173.94	278	1175.51	960	1175.45	855	1174.99	609	1174.32	373	1174.49	423	1174.20	340	1174.16	330
15	.....	.....	1173.53	196	1173.53	196	1173.48	186	1173.97	284	1175.55	920	1175.47	868	1174.91	576	1174.36	388	1174.53	438	1174.22	345	1174.16	330
16	.....	.....	1173.53	196	1173.53	196	1173.49	188	1173.99	289	1175.56	891	1175.38	816	1174.82	542	1174.43	404	1174.53	438	1174.20	340	1174.16	330
17	.....	.....	1173.57	203	1173.53	196	1173.51	193	1174.01	295	1175.56	993	1175.30	765	1174.82	542	1174.53	438	1174.53	438	1174.26	355	1174.16	330
18	.....	.....	1173.57	203	1173.55	198	1173.53	196	1174.03	299	1175.53	908	1175.43	846	1174.80	533	1174.57	450	1174.55	444	1174.16	330	1174.16	330
19	.....	.....	1173.57	203	1173.55	198	1173.58	204	1174.03	299	1175.61	960	1175.34	787	1174.78	526	1174.59	456	1174.53	438	1174.24	351	1174.16	330
20	.....	.....	1173.57	203	1173.53	196	1173.62	210	1174.13	324	1175.53	920	1175.32	775	1174.74	509	1174.61	462	1174.43	430	1174.26	355	1174.16	330
21	.....	.....	1173.53	196	1173.49	188	1193.63	216	1174.22	345	1175.53	908	1175.30	765	1174.72	502	1174.61	462	1174.49	423	1174.24	351	1174.16	330
22	.....	.....	1173.53	196	1173.47	185	1173.65	217	1174.19	345	1175.53	908	1175.24	730	1174.68	488	1174.61	462	1174.49	423	1174.22	345	1174.16	330
23	.....	.....	1173.55	193	1173.45	181	1173.65	217	1174.22	345	1175.56	993	1175.28	754	1174.66	480	1174.63	474	1174.49	423	1174.24	351	1174.16	330
24	.....	.....	1173.51	193	1173.45	181	1173.65	217	1174.31	369	1175.53	908	1175.32	775	1174.61	462	1174.55	444	1174.49	423	1174.26	355	1174.14	326
25	.....	.....	1173.55	198	1173.47	185	1173.66	219	1174.36	388	1175.56	908	1175.36	805	1174.57	450	1174.53	438	1174.47	417	1174.28	361	1174.14	326
26	.....	.....	1173.51	193	1173.47	185	1173.66	219	1174.38	393	1175.53	908	1175.24	730	1174.53	438	1174.53	438	1174.32	373	1174.28	361	1174.11	318
27	.....	.....	1173.51	193	1173.53	196	1173.66	219	1174.38	393	1175.45	855	1175.16	689	1174.49	423	1174.53	438	1174.36	388	1174.28	361	1174.14	326
28	.....	.....	1173.49	188	1173.51	193	1173.68	224	1174.48	420	1175.45	855	1175.24	730	1174.47	417	1174.51	430	1174.34	378	1174.26	355	1174.14	326
29	.....	.....	.....	....	1173.51	193	1173.68	224	1174.47	417	1175.45	855	1175.16	689	1174.45	410	1174.49	423	1174.32	373	1174.28	361	1174.14	326
30	.....	.....	.....	....	1173.51	193	1173.70	227	1174.53	438	1175.45	855	1175.13	678	1174.41	398	1174.49	423	1174.32	373	1174.28	361	1174.14	326
31	.....	.....	.....	....	1173.51	193	.....	....	1174.65	477	.....	....	1175.16	689	1174.39	393	.....	.....	1174.34	378	.....	....	1174.11	318

Monthly Discharge of Eagle River at Eagle River for 1914

Drainage Area, 933 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	.....	.....	.....	.....	.....	.....	.....
February	.....	.....	.....	.....	.....	.....	.....
March	198	181	193	0.21	0.19	0.21	0.24
April	227	186	202	0.24	0.20	0.22	0.24
May	477	224	315	0.51	0.24	0.33	0.39
June	993	477	798	1.06	0.51	0.85	0.95
July	883	678	794	0.95	0.73	0.85	0.98
August	689	393	548	0.74	0.42	0.59	0.68
September	474	307	396	0.51	0.33	0.42	0.47
October	444	373	408	0.48	0.40	0.44	0.50
November	388	330	360	0.42	0.35	0.39	0.44
December	355	318	322	0.38	0.34	0.34	0.39
The period	993	181	434	1.06	0.19	0.49	5.28

English River at Ear Falls

Location —At the foot of Lac Suel, about 3 miles below Pine Ridge Hudson's Bay Co., post, and about ¼ mile above Upper Ear Falls, Kenora District.

Records Available —Monthly discharge measurements, July to Oct., 1914. Daily gauge heights, read at the main H. B. Co. post, 75 miles above the section on Lac Suel, but do not give the fluctuations at the gauging section.

Drainage Area —Not measured.

Gauge —Vertical steel staff with enamelled face, graduated in feet and inches, and screwed to a 6-inch hewn spruce post, which is firmly wedged in a rock on the left bank, 200 feet below a 2 inch poplar, which is painted with white paint and used as the initial point for surroundings. The zero on the gauge (elevation 115.14) is referred to a bench mark (elevation 122.78) painted on a rock 5 feet above the gauge. Another bench mark (elevation 122.08) is located at the head of the falls, 30 feet west of the portage entrance, directly below the section.

Channel —Straight for about 400 feet above and 300 feet below the station, to the Upper Ear Falls. Both banks are high, rocky and wooded and will not overflow. The bed of the stream is composed of rock with a little gravel, apparently stable. The current is sluggish, flowing through one channel at all stages.

Discharge Measurements —Made from a canoe with a Price small current meter.

Accuracy —Backwater on the left bank at certain stages of the river, causes difficulty in making accurate measurements of the discharge.

Discharge Measurements of English River at Ear Falls in 1914

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
July 4....	Binns, P. V.	339	8786	1.01	120.02	8906	.....
Aug. 10....	"	338.6	8749	1.06	119.85	9318	.....
Sept. 12....	McLennan, C. C.	337	8643	.85	119.52	7408	.....
Oct. 30....	Binns, P. V.	345.1	8562	.79	119.28	6801	.....

English River at Manitou Falls

Location —About 800 feet above the first chute of the Manitou Falls, and 5 miles below the old Mattawa H. B. Co. post, Kenora District. Cedar River enters the English River ½ mile below the metering station, after which the English River flows west.

Records Available —Monthly discharge measurements, July to Oct., 1914.

Drainage Area — Not measured.

Gauge—Vertical steel staff with enamelled face, graduated in feet and inches, and screwed to a 6 inch hewn pine post firmly wedged and wired to the right bank, 15 feet south of the initial point, which consists of a 2 inch blazed jack pine, about 800 feet above the first fall. The zero of the gauge (elevation 89.42) is referred to a bench mark (elevation 100.43) painted on a rock 2.5 feet south-east of the initial point. It is also referred to a bench mark (assumed elevation 100.00) located on the left bank, 800 feet south of the section and at the head of the falls, 50 feet west of the head of the portage.

Channel—At a point 1,200 feet above the station, the river turns to the right into a comparatively straight stretch, and opens into a weedy marsh or small lake 800 feet below the section, just above the falls. Both banks are high, rocky and wooded and will not overflow. The current is sluggish and flows through one channel at all stages.

Discharge Measurements—Made from a canoe with a small Price current meter.

Discharge Measurements of English River at Manitou Falls in 1914

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
July 3....	McLennan, C. C.	190.7	3881	2.46	93.46	9555	.....
Aug. 9....	" .	195.7	3961	2.59	93.84	10279	.....
Sept. 30....	" .	185.9	3721	2.30	92.68	8580	.....
Oct. 31....	" .	183	3619	2.28	92.09	8257	.....

English River near Oak Lake Falls

Location—About 1 mile above the upper fall of Oak Lake Falls, and about ½ mile below Wilcox Lake, District of Kenora.

Records Available—Monthly discharge measurements, Aug. to Nov., 1914.

Drainage Area—Not measured.

Gauge—A bench mark gauge located on a rock in the river at the station near the right bank. The initial point for soundings is established on the left bank, and consists of the head of a nail driven into the blazed side of a 12 inch poplar, painted I. P. N. 70° W.

Channel—Straight for about 300 feet above and ½ mile below the station. Both banks are high, rocky, wooded and not liable to overflow. The bed of the stream is rocky and practically permanent. The current is sluggish at the station, but swift through the little rapids 800 feet below after which it becomes sluggish to the head of the falls. One channel exists at all stages.

Discharge Measurements—Made from a canoe with a small Price current meter.

Discharge Measurements of English River near Oak Lake Falls in 1914

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
Aug. 7....	McLennan., C. C.	397.2	7011	1.68	197.11	11344	.....
Sept. 27....	" .	390.9	6774	1.41	196.50	9568	.....
Nov. 5....	" .	387.7	6672	1.30	196.25	8698	.....
Dec. 23....	" .	383.0	6429	1.11	195.64	7131	.....

English River at Sturgeon Falls

Location —Located about 300 feet above the lowest of the three falls known as Sturgeon Falls, District of Kenora.

Records Available —Monthly discharge measurements, from June to Oct., 1914.

Drainage Area —Not measured.

Gauge —Vertical steel staff with enamelled face, graduated in feet and inches, and screwed to a 5 inch hewn spruce post, firmly wedged and braced to the left bank, about 150 feet below the station. The zero on the gauge (elevation 91.52) is referred to a bench mark (assumed elevation 100.00) on the left bank, 10 feet from the initial point and 2 feet below the line of the section. The initial point for soundings is blazed on the edge of a 6 inch poplar on the left bank and marked I. P. N. 10° E.

Channel —There are deep bays on both sides of the river above the station, from which point the water flows in a comparatively straight channel gradually narrowing towards the head of the falls. Both banks are high, rocky and wooded and will not overflow. The bed is composed of rock with a little sand in the centre of the river. The velocity is low at the left bank, slight backwater existing at higher stages.

Discharge Measurements —Made from a canoe with a small Price current meter.

Control —The Dryden Timber and Power Co. operate a dam on the Wabigoon River, which is a tributary stream.

Discharge Measurements of English River at Sturgeon Falls in 1914

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
June 12....	McLennan, C. C.	362	8829	1.36	93.85	11996	.....
July 14....	"	388	9397	1.53	95.36	14403	.....
Sept. 11....	"	354	8620	1.29	93.25	11089	.....
Oct. 22....	"	357	8724	1.31	93.55	11444	.....

English River—Lower Sturgeon Falls

English River—Caribou Falls

English River at Caribou Falls

Location —About 1,200 feet above Caribou Falls, the lowest falls on the river, District of Kenora.

Records Available —Monthly discharge measurements, May to Oct., 1914.

Drainage Area —Not measured.

Gauge —Vertical staff located on the left bank of the river, 25.6 feet north of a blazed jack pine, which is used as the initial point for soundings. The zero on the gauge (elevation 100.00) is referred to a bench mark (elevation 109.45) painted on the point of a rock, 16 feet south of the blazed jack pine.

Channel —Above the station the channel takes a sharp 90 degree curve to the right, thence flowing comparatively straight to the head of the falls. Both banks are high, rocky and wooded and not liable to overflow. The bed of the stream is rocky, with large boulders or protruding shelves of rock and practically permanent. The water near the left bank is still.

Discharge Measurements —Made from a canoe and raft with a small Price current meter.

Control —The Dryden Timber and Power Co. operate a plant on the Wabigoon River, a tributary stream.

Discharge Measurements of English River at Caribou Falls in 1914

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1914							
May 25....	McLennan, C. C.	236	10051	.87	101.72	8785	.....
June 14....	"	239	10214	1.43	102.92	14606	.....
July 11....	"	240	10342	1.53	103.17	15812	.....
Sept. 5....	"	239	10165	1.18	102.36	12061	.....
" 6....	"	239	10169	1.19	102.39	12162	.....
" 6....	"	239	10165	1.19	102.36	12188	.....
" 7....	"	239	10180	1.17	102.36	11935	.....
" 7....	"	239	10166	1.09	102.35	11182	.....
" 8....	"	239	10164	1.16	102.33	11774	.....
Oct. 20....	"	240	10191	1.22	102.45	12409	.....
Dec. 14....	"	236	10020	.88	101.75	8885	.....

Miscellaneous Measurements

River	Date	Discharge in Sec-ft.	Location
Abitibi	Oct. 23, 1911	5,487	At Iroquois Falls
"	Feb. 2, 1912	3,026	At Couchiching Falls
"	Mar. 12, 1913	1,743	Above Iroquois Falls
"	Mar. 13, 1913	2,493	¾ mile above Black River
"	April 8, 1914	947	Iroquois Falls
Black (Nipissing)	Mar. 26, 1913	248	Above McDougall's Chutes
Bonnechere	Oct. 4, 1913	117	Round Lake Dam
"	Oct. 6, 1913	106	Golden Lake
Boyne	June 11, 1912	66	Alliston
"	July 6, 1912	12	"
"	Aug. 9, 1912	66	"
"	Sep. 13, 1912	27	"
"	Oct. 13, 1912	50	"
Driftwood	Mar. 22, 1911	39	Monteith
English	May 26, 1906	6,740	Pelican Falls
"	June 2, 1906	6,702	Manitou Rapids
"	Feb. 6, 1914	1624	Pelican Falls
"	Mar. 4, 1914	1337	" "
Gull	July 27, 1911	532	Minden
"	Sept. 6, 1911	546	"
"	Oct. 9, 1911	642	"
"	Nov. 3, 1911	448	"
"	Dec. 9, 1911	696	"
"	Jan. 10, 1912	569	"
"	Feb. 9, 1912	410	"
"	Mar. 8, 1912	405	"
"	Apr. 15, 1912	1,124	"
"	May 15, 1912	1,613	"
"	June 13, 1912	780	"
"	July 15, 1912	1,561	"
Kaministiquia	Aug. 12, 1905	2,737	Fort William
"	Sep. 6, 1905	2,091	Tonkin's Farm
"	Sep. 8, 1905	882	Silver Falls
"	Feb. 3, 1906	1,100	Kakabeka Falls
"	Jan. 28, 1906	662	Silver Falls
"	Mar. 10, 1906	880	Kakabeka Falls
"	Mar. 6, 1906	494	Silver Falls
"	Oct. 6, 1906	1,355	Tonkin's Farm
Kawa Kash Kagama	Sep. 20, 1906	159	Howard's Falls
Kapuskasing	Sep. 20, 1911	679	Loon Falls
"	Sep. 21, 1911	713	Lapenagam Falls
"	Sep. 23, 1911	1,074	Wendega Falls
"	Sep. 24, 1911	967	Kabohose Falls
"	Oct. 26, 1911	933	Weiswinin Falls
"	Feb. 28, 1912	613	Sesebegagan Falls
"	Feb. 29, 1912	686	Weiswinin Falls
Maganetawan	Oct. 10, 1912	391	Byng Inlet
"	Nov. 11, 1912	1,053	" "
"	Dec. 12, 1912	2,044	" "
"	Jan. 13, 1913	965	" "
"	Feb. 10, 1913	965	" "
"	Mar. 14, 1913	827	" "
"	July 8, 1913	1,311	" "
"	Aug. 12, 1913	535	" "
"	Sep. 10, 1913	Nil	" "
Mettagami	Mar. 25, 1912	633	Sandy Bay Falls
"	Mar. 27, 1912	415	Wawiatan Falls
"	Mar. 16, 1913	195	" "
"	Mar. 29, 1913	240	" "
"	Mar. 30, 1913	232	" "
"	Mar. 30, 1913	207	" "
"	Mar. 30, 1913	218	" "
"	July 15, 1911	792	" "

Miscellaneous Measurements—Continued

River	Date	Discharge in Sec-ft.	Location
Mettagami	July 11, 1911	921	Kenogamisse Falls
"	Feb. 7, 1912	1,421	Smooth Rock Falls
"	Jan. 24, 1912	1,608	Sturgeon Falls
Madawaska	Oct. 3, 1913	692	Below Calabogie
Mississippi	Oct. 2, 1913	196	Snow Road
Missanaibi	Aug. 21, 1911	561	St. Paul's Falls
"	Aug. 24, 1911	1,107	Pond Falls
"	Aug. 26, 1911	1,756	Sandy Bay, Glass Falls
"	Mar. 3, 1912	736	Glass Falls
Montreal	Jan. 8, 1908	930	Gillies Siding
Moira	Oct. 25, 1905	700	Belleville
"	Nov. 8, 1905	590	"
"	Dec. 5, 1905	946	"
Nepigon	Sep. 15, 1905	8,924	Pine Portage
"	Nov. 3, 1905	7,014	Cameron's Pool
"	Feb. 9, 1906	5,982	"
"	Mar. 23, 1906	5,879	"
"	Sep. 30, 1906	5,884	"
North-West	Sep. 13, 1912	256	Foot Print Lake
Onaping	Jan. 1906	254	High Falls
Pic	Aug. 5, 1906	154	Lake Superior Portage
Rainy	Oct. 25, 1905	14,145	Fort Frances
"	Apr. 1, 1906	6,805	"
"	Sep. 26, 1910	5,229	"
Rouge Creek	May 14, 1912	24	Markham
"	May 14, 1912	23	"
"	June 21, 1912	23	"
"	July 16, 1912	7	"
"	Aug. 17, 1912	11	"
"	Sep. 14, 1912	43	"
"	Oct. 14, 1912	69	"
Saugeen	July 17, 1911	164	Chesley
"	Aug. 16, 1911	140	"
"	Sep. 13, 1911	168	"
"	Oct. 13, 1911	174	"
"	Nov. 7, 1911	185	"
"	Dec. 19, 1911	181	"
"	Jan. 24, 1912	180	"
"	Feb. 21, 1912	179	"
"	Mar. 26, 1912	233	"
"	Apr. 11, 1912	2,151	"
"	Apr. 24, 1912	369	"
"	May 28, 1912	236	"
"	June 25, 1912	182	"
"	June 25, 1912	100	"
"	July 24, 1912	168	"
"	July 24, 1912	102	"
"	Aug. 23, 1912	96	"
"	Aug. 24, 1912	169	"
"	Sep. 25, 1912	118	"
"	Sep. 25, 1912	78	"
"	Oct. 28, 1912	121	"
Severn	Aug. 22, 1906	1,206	Big Chute
"	Nov. 9, 1905	1,503	"
Sturgeon (Nipissing)	Jan. 19, 1906	1,230	Smoky Falls
Sturgeon (Thunder Bay)	July 26, 1906	251	Beaver Falls
Seine	July 9, 1906	1,842	Island Falls
Trent	Oct. 16, 1905	2,200	Trenton
"	Oct. 25, 1905	2,406	"
"	Nov. 7, 1905	2,196	"
"	Nov. 16, 1905	2,090	Healey Falls
Vermillion	Jan. 1906	791	Wabageshik Chute
Wabigoon	Oct. 9, 1905	206	Dryden
"	Apr. 24, 1914	230	Wainwright Falls

Miscellaneous Measurements—Concluded

River	Date	Discharge in Sec-ft.	Location
White Fish	Jan. 1906	207	White Fish Falls
"		146	Below Penache Lake
Winnipeg	Oct. 14, 1905	5,321	Eastern Outlet
"	Apr. 8, 1906	4,490	" "
"	Oct. 16, 1905	899	L. of W. Milling Co. head-race
"	Oct. 16, 1905	400	Keewatin Lumber Co.
"	Oct. 18, 1905	21,794	Western Outlet
"	Dec. 17, 1914	8,537	Minaki
"	Oct. 17, 1914	546	Whitedog (north channel)
"	Dec. 15, 1914	354	Whitedog (north channel)
"	Oct. 18, 1914	12,224	Whitedog (south channel)
"	Jan. 20, 1914	7,661	Whitedog Falls
"	Dec. 16, 1914	8,788	Whitedog Falls
York	Oct. 7, 1913	136	Below High Falls
"	Oct. 8. 1913	181	Below Bancroft

Summary of Discharge

Summary of discharge in second-feet per square mile for regular river stations for which such data are available in this report.

Station	Drainage Area	1914												
		Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Beaver River at Eugenia Falls	74	0.47	0.74	0.99	2.38	1.17	0.68	0.48	0.42	0.34	0.42	0.56	0.56	0.77
Beaver River at Feversham	37.1	.....	.....	0.90	0.93	0.96	0.58	0.39	0.39	0.34	0.32	0.44	0.61	.....
Eagle River at Eagle River	933	.....	.....	0.21	0.22	0.33	0.85	0.85	0.59	0.42	0.44	0.39	0.34	.....
Footprint River at Rainy Lake Falls	588	.....	.....	.....	.....	.....	.....	.....	.....	0.405	0.173	.....	.....	.....
Maitland River at Ben Miller	950	1.36	1.48	3.86	2.35	0.46	0.21	0.13	0.12	0.14	0.13	0.59	0.98	0.98
Manitou River at Devil's Cascades	440	.....	.....	.....	.....	.....	.....	.....	0.588	0.482	0.511	0.503	.....	.....
Muskoka River at Tretheway's Falls	658	.....	.....	.....	.....	.....	1.73	1.63	0.49	0.47	0.44	0.66	0.94	.....
Nottawasaga River near Nicolston	325	.....	.....	.....	.....	.....	.....	.....	.....	0.397	0.542	0.745	0.649	.....
Saugeen River near Port Elgin	1,565	.....	.....	.....	.....	0.84	0.44	0.33	0.30	0.26	0.32	0.74	0.65	.....
Saugeen River near Walkerton	895	.....	.....	.....	.....	0.70	0.34	0.29	0.31	0.24	0.32	0.66	0.73	.....
Seine River at Skunk Rapids	3,483	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.411	0.350	.....	.....
Severn River at Severn Bridge	2,075	0.46	0.46	0.45	1.48	1.34	0.52	0.47	.....	.....	.....	.....	.58	.....
South River near Powassan	322	.....	.....	.....	4.66	2.45	0.70	0.40	0.40	0.53	0.49	0.82	0.79	.....
Sturgeon River near Smoky Falls	2,135	.....	.....	.....	1.69	3.95	1.55	1.325	0.891	0.847	0.973	1.305	1.077	.....
Thames River near Byron, main stream	1,270	.....	.....	.....	.....	1.36	0.563	0.38	0.34	0.481	0.33	0.73	1.06	.....
Wabigoon River near Quibell	1,612	.....	.....	.....	.....	.....	.....	.....	0.651	0.732	0.719	0.549	.....	.....

Grand River Watershed Regular Stations

River	Location	Drainage Area Sq. Miles	Township	County
Boston Creek	near York	123	Oneida	Haldimand
Conestogo	at St. Jacob's	312	Woolwich	Waterloo
Fairchild's Creek	near Onondaga	112	Onondaga	Brant
Galt Creek	at Galt	48	Dumfries N.	Waterloo
Grand	at Belwood	270	Garafaxa	Wellington
"	at Brantford	1,991	Brantford	Brant
"	near Conestogo	538	Woolwich	Waterloo
"	at Galt	1,356	Dumfries N.	Waterloo
"	at Glen Morris	1,385	Dumfries S.	Brant
"	at York	2,311	Oneida	Haldimand
Irvine	near Salem	64	Nicol	Wellington
Nith	near Canning	386	Blenheim	Oxford
Speed	at Hespeler	259	Waterloo	Waterloo
"	at Caraher's Bridge	80.5	Guelph	Wellington
Whiteman's Creek	near Burford	153	Brantford	Brant

Grand River at Belwood

Location—At the bridge in the Village of Belwood, on the 7th concession, Township of Garafraxa, County of Wellington.

Records Available—Aug. 1st, 1913, to Dec. 31st, 1914.

Drainage Area—270 square miles.

Gauge—Vertical staff, 0 ft.—12 ft. on right abutment. Elev. of zero on gauge, 1366.00, which has remained unchanged since established.

Channel—The channel bed at the bridge is solid rock, and is permanent at all stages. The channel at the low-water section is shifting during high-water conditions.

Discharge Measurements—Made from the bridge, except at low-water period, when a permanent cross-section is used, located 400 feet down stream.

Winter Flow—Winter readings are taken here to determine the winter discharge. During the months December to March the relation between gauge height and discharge is greatly affected, as much as two feet of ice forming at the gauge.

Accuracy—The river stage at this section is not affected by any power plants above or below. The records can be classed as good.

Observer—Lloyd Mosure.

Discharge Measurements of Grand River at Belwood in 1913-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1913							
July 30....	Roberts, E	14	5	.56	1366.79	3	.....
Aug. 26....	"	14	6	.76	1366.83	5	.....
Sept. 20....	"	14	7	.77	1366.87	5	.....
Oct. 28....	"	55	19	.65	1367.08	12	.....
Nov. 25....	"	70	59	2.56	1367.62	152	.....
Dec. 18....	"	70	37	1.27	1367.29	47	.....
1914							
Mar. 3....	"	90	31	.50	1368.08	15	.....
Feb. 3 (a)	"	90	138	2.26	1369.00	312	.....
April 7....	"	110	195	1.98	1368.20	385	.....
" 20....	"	110	517	1.15	1368.42	595	.....
" 26....	"	110	438	.58	1367.96	255	.....
June 11....	"	60	18	.54	1367.00	10	.....
July 8....	"	59	11	.28	1366.83	3	.....
Aug. 4....	"	57	10	.26	1366.83	2	.....
Sept. 1....	"	60	15	.48	1366.96	7	.....
" 1....	"	59	14	.48	1366.96	7	.....
" 1....	"	59	15	.48	1366.96	7	.....
" 16....	"	59	11	.35	1366.92	3	.....
" 16....	"	59	10	.38	1366.92	4	.....
Oct. 6....	"	59	12	.35	1366.89	4	.....
" 6....	"	59	12	.36	1366.89	4	.....
" 6....	"	59	12	.36	1366.89	4	.....
Nov. 25 (a)	"	69	47	1.02	1367.42	48	.....
Dec. 29 (a)	"	77	28	1.09	1367.50	31	.....

(a) Ice conditions

Daily Gauge Height and Discharge of Grand River at Belwood for 1913

Drainage Area, 270 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.79	4	1366.83	5	1366.83	5	1367.00	8	1367.37	65
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.77	3	1366.83	5	1366.83	5	1367.00	8	1367.37	65
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.75	3	1366.83	5	1366.83	5	1367.00	8	1367.37	65
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.75	3	1366.83	5	1366.83	5	1367.00	8	1367.33	56
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.75	3	1366.83	5	1366.83	5	1367.00	8	1367.33	56
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.77	3	1366.83	5	1366.83	5	1367.00	8	1367.33	56
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.79	4	1366.83	5	1367.00	8	1367.00	8	1367.46	87
8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.79	4	1366.79	4	1366.83	5	1367.04	10	1367.33	56
9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.89	7	1366.79	4	1366.83	5	1367.06	12	1367.33	56
10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.96	9	1366.79	4	1366.83	5	1367.23	36	1367.33	56
11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.90	7	1366.79	4	1366.85	5	1367.17	26	1367.33	56
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.88	6	1366.81	4	1366.92	7	1367.04	10	1367.33	56
13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.85	5	1366.79	4	1366.92	7	1367.17	26	1367.33	56
14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.83	5	1366.79	4	1366.92	7	1367.17	26	1367.20	31
15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.81	4	1366.79	4	1366.88	6	1367.17	26	1367.20	31
16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.79	4	1366.79	4	1366.88	6	1367.17	26	1367.20	31
17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.79	4	1366.85	5	1366.88	6	1367.08	14	1367.27	43
18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.77	3	1366.90	7	1366.92	7	1367.04	10	1367.25	40
19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.75	3	1366.88	6	1367.00	11	1367.42	77	1367.25	40
20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.75	3	1366.87	5	1367.00	11	1367.71	156	1367.25	40
21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.92	7	1366.90	7	1367.00	11	1367.69	150	1367.12	18
22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.96	9	1366.85	5	1367.00	11	1367.62	130	1367.12	18
23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.94	9	1366.83	5	1367.10	18	1367.71	156	1367.12	18
24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.88	6	1366.85	5	1367.19	31	1367.71	156	1367.08	14
25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.83	5	1366.88	6	1367.13	21	1367.60	124	1367.08	14
26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.83	5	1366.88	6	1367.04	13	1367.54	108	1367.08	14
27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.83	5	1366.85	5	1367.04	13	1367.48	92	1367.08	14
28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.83	5	1366.83	5	1367.05	13	1367.42	77	1367.08	14
29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.85	5	1366.85	5	1367.08	16	1367.35	61	1367.08	14
30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.88	6	1366.88	6	1367.06	14	1367.33	56	1367.08	14
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1366.88	6	.....	.....	1367.00	11	.....	.....	1367.08	14

Daily Gauge Height and Discharge of Grand River at Belwood for 1914

Drainage Area, 270 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	1367.08	14	1369.08	113	1368.16	10	1370.54	2080	1368.08	324	1367.04	10	1366.92	5	1366.75	3	1367.10	16	1366.85	4	1367.08	14	1368.50	625
2	1367.08	14	1369.08	430	1368.08	16	1370.75	2240	1368.25	432	1367.04	10	1366.92	5	1366.75	3	1367.04	10	1366.83	4	1367.08	14	1368.46	590
3	1367.08	14	1369.04	320	1368.08	16	1369.75	1520	1367.83	196	1367.04	10	1366.93	5	1366.79	4	1367.12	18	1366.83	4	1367.12	18	1368.35	510
4	1367.08	14	1368.83	232	1368.08	9	1369.04	1020	1367.66	144	1367.04	10	1366.92	5	1366.83	4	1367.06	12	1366.83	4	1367.12	18	1367.98	262
5	1367.08	14	1368.71	172	1368.08	6	1368.58	682	1367.58	118	1367.04	10	1366.92	5	1366.79	4	1367.04	10	1366.83	4	1367.12	18	1367.52	102
6	1367.08	14	1368.68	58	1368.08	6	1368.16	373	1367.58	118	1367.00	8	1366.92	5	1366.79	4	1367.06	12	1366.83	4	1367.00	8	1367.83	196
7	1367.08	14	1368.66	18	1368.08	5	1368.16	373	1367.58	118	1367.02	9	1366.92	5	1366.77	4	1367.00	8	1366.83	4	1367.08	14	1367.50	97
8	1367.08	14	1368.62	4	1368.08	5	1368.50	97	1368.00	274	1367.20	31	1366.87	4	1366.79	4	1367.00	8	1366.83	4	1367.08	14	1367.70	185
9	1367.08	14	1368.33	4	1367.58	5	1367.42	77	1367.66	144	1367.08	14	1366.83	4	1366.75	3	1367.00	8	1367.00	8	1367.00	8	1367.85	203
10	1367.08	14	1368.33	4	1367.62	5	1367.96	250	1367.66	144	1367.04	10	1366.87	4	1366.83	4	1366.96	6	1367.10	16	1367.04	10	1367.75	189
11	1367.16	24	1368.33	4	1367.66	5	1367.92	232	1367.58	118	1367.00	8	1366.79	4	1366.83	4	1366.96	6	1367.20	31	1367.04	10	1367.56	113
12	1367.25	40	1368.33	4	1367.54	5	1367.75	169	1367.50	97	1367.00	8	1366.79	4	1366.83	4	1366.94	6	1367.16	24	1367.08	14	1367.37	65
13	1367.20	32	1368.29	4	1367.54	24	1367.75	169	1367.42	77	1366.92	5	1366.81	4	1366.85	4	1366.92	5	1367.08	14	1367.18	14	1367.25	40
14	1367.16	24	1368.25	4	1367.58	70	1367.83	196	1367.42	77	1366.92	5	1366.83	4	1366.96	6	1366.92	5	1367.14	21	1367.25	40	1367.25	40
15	1367.16	24	1368.25	4	1368.33	185	1367.96	250	1367.42	77	1366.92	5	1366.83	4	1366.87	4	1366.92	5	1367.06	12	1367.35	60	1367.29	47
16	1367.25	40	1368.25	5	1369.71	570	1368.00	274	1367.42	77	1366.92	5	1366.83	4	1366.85	4	1366.87	4	1367.06	12	1367.85	201	1367.29	47
17	1367.25	40	1368.25	6	1370.42	1200	1368.00	274	1367.25	40	1366.87	4	1366.83	4	1366.92	5	1366.92	5	1367.04	10	1367.75	169	1367.20	31
18	1367.25	40	1368.25	7	1370.46	805	1368.00	274	1367.25	40	1366.92	5	1366.83	4	1366.96	6	1366.87	4	1367.04	10	1367.46	87	1367.31	29
19	1367.25	40	1368.25	8	1370.50	645	1368.08	324	1367.20	31	1366.94	6	1366.79	4	1366.98	7	1366.83	4	1367.04	10	1367.50	97	1367.35	30
20	1367.25	40	1368.00	11	1370.54	455	1368.33	490	1367.14	21	1366.92	5	1366.79	4	1367.12	18	1366.83	4	1367.08	14	1367.42	77	1367.96	33
21	1367.25	40	1368.00	9	1370.56	445	1368.25	420	1367.12	18	1366.92	5	1366.77	4	1367.08	14	1366.83	4	1367.04	10	1367.33	56	1367.42	31
22	1367.25	40	1367.75	6	1370.10	374	1368.20	398	1367.08	14	1366.92	5	1366.75	3	1367.08	14	1366.83	4	1367.04	10	1367.42	77	1367.46	31
23	1367.25	40	1367.75	4	1369.73	256	1368.04	300	1367.08	14	1366.92	5	1366.75	3	1367.04	10	1366.96	6	1367.00	8	1367.42	77	1367.42	31
24	1367.42	43	1368.00	4	1369.50	238	1367.62	130	1367.50	97	1367.00	8	1366.79	4	1367.00	8	1366.96	6	1367.00	8	1367.42	77	1367.42	31
25	1367.42	49	1368.00	4	1369.56	280	1367.79	182	1367.50	97	1366.96	6	1366.79	4	1366.92	5	1366.92	5	1367.00	8	1367.42	77	1367.42	31
26	1367.42	56	1368.08	4	1370.66	800	1367.92	232	1367.12	18	1366.92	5	1366.75	3	1366.90	5	1366.92	5	1367.00	8	1367.44	82	1367.33	27
27	1367.58	65	1368.16	5	1370.89	2350	1367.92	232	1367.08	14	1366.92	5	1366.75	3	1366.87	4	1366.87	4	1367.00	8	1367.96	250	1367.35	27
28	1367.62	75	1368.16	6	1370.77	2160	1367.83	196	1367.10	16	1366.92	5	1366.75	3	1366.87	4	1366.87	4	1367.00	8	1368.29	377	1367.39	31
29	1367.71	80	.....	....	1370.58	2120	1367.87	211	1367.08	14	1366.94	6	1366.81	4	1366.96	6	1366.87	4	1367.00	8	1367.92	232	1367.42	31
30	1367.79	87	.....	....	1371.25	2630	1368.33	490	1367.08	14	1366.96	6	1366.79	4	1367.00	8	1366.87	4	1367.02	9	1367.92	232	1367.42	31
31	1368.79	100	.....	....	1370.96	2400	.....	....	1367.04	10	.....	....	1366.75	3	1366.92	5	.....	.....	1367.06	12	.....	....	1367.42	31

Monthly Discharge of Grand River at Belwood for 1913

Drainage Area, 270 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	.....	.....	.....	.....	.....	.....	.....
February	.....	.....	.....	.....	.....	.....	.....
March	.....	.....	.....	.....	.....	.....	.....
April	.....	.....	.....	.....	.....	.....	.....
May	.....	.....	.....	.....	.....	.....	.....
June	.....	.....	.....	.....	.....	.....	.....
July	.....	.....	.....	.....	.....	.....	.....
August	9	3	5	.03	.01	.02	.02
September	7	4	5	.03	.01	.02	.02
October	31	5	9	.11	.02	.03	.03
November	156	8	54	.58	.03	.20	.22
December	87	14	39	.32	.05	.14	.16
The period	156	3	22	.58	.01	.08	.45

Monthly Discharge of Grand River at Belwood for 1914

Drainage Area, 270 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	100	14	37	.37	.05	.14	.16
February	430	4	52	1.59	.01	.19	.20
March	2,630	5	584	9.74	.02	2.16	2.49
April	2,240	77	472	8.30	.28	1.75	1.95
May	432	10	96	1.60	.04	.36	.40
June	31	4	7	.11	.01	.03	.03
July	5	3	4	.02	.01	.01	.01
August	18	3	5	.07	.01	.02	.02
September	18	4	6	.07	.01	.02	.02
October	31	4	10	.11	.01	.04	.04
November	377	8	81	1.40	.03	.30	.33
December	625	27	122	2.31	.10	.45	.52
The year	2,630	3	124	9.74	.01	.46	6.17

Grand River at Conestogo

Location—At the bridge ¼ mile below the Village of Conestogo.

Records Available—July 16th, 1913, to Dec. 31st, 1914.

Drainage Area—538 sq. miles.

Gauge—Vertical staff, 0 ft.—12 ft. on 2nd pier from right bank. Elev. of zero is 1017.00.

Channel—Gravel forms the bed of the stream. The banks are permanent.

Discharge Measurement—Made from the bridge, and a permanent low-water cross-section is located 600 feet upstream.

Control—The river stage at this section is free from any serious fluctuations, and the flow is natural.

Winter Flow—Ice affects the relation between gauge height and discharge. Winter readings are taken to determine this flow. The period affected is from about the middle of December to the middle of March.

Accuracy—Apart from the fact that the river bed is shifting during high water period, the conditions at this station are favorable.

Observer—E. Schinbein.

Discharge Measurements of Grand River at Conestogo in 1913-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1913							
July 16....	Roberts, E	135	66	.75	1018.10	48	.....
Aug. 27....	"	125	40	.52	1017.64	21	.....
Sept. 23....	"	125	46	.65	1017.69	30	.....
Oct. 29....	"	135	69	.78	1018.17	54	.....
Nov. 27....	"	140	147	1.93	1018.62	283	.....
Dec. 19....	"	140	75	.83	1018.14	62	.....
1914							
Feb. 4 (a)	"	127	240	1.62	1020.00	389	.....
Mar. 4 (a)	"	96	164	.40	1019.33	66	.....
" 28....	"	.....	.....	.....	1022.56	....	.....
April 8....	"	120	232	2.69	1019.41	626	.....
" 22....	"	120	247	2.64	1019.50	654	.....
June 12....	"	100	119	.33	1017.83	38	.....
July 10....	"	123	39	.31	1017.62	12	.....
Aug. 5....	"	123	39	.35	1017.58	13	.....
Sept. 1....	"	130	73	.94	1018.12	68	.....
" 1....	"	130	74	.90	1018.12	67	.....
" 1....	"	130	73	.93	1018.12	67	.....
" 16....	"	128	52	.59	1017.83	30	.....
" 16....	"	128	52	.60	1017.83	31	.....
Oct. 6....	"	128	53	.58	1017.83	30	.....
Nov. 26....	"	149	156	.81	1018.42	126	.....
Dec. 30 (a)	"	139	87	.86	1018.75	74	.....

(a) Ice conditions

Daily Gauge Height and Discharge of Grand River at Conestogo for 1913

Drainage Area 538 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft*
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.77	22	1017.97	43	1017.75	21	1018.04	78	1018.40	197
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.77	22	1017.77	22	1017.81	26	1017.88	46	1018.37	185
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.56	10	1017.66	16	1017.67	16	1017.94	57	1018.35	177
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.55	10	1017.68	17	1017.69	17	1018.00	90	1018.36	182
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.62	13	1017.80	25	1017.66	16	1017.96	61	1018.29	155
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.66	16	1017.83	28	1017.70	18	1017.90	50	1018.35	177
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.75	21	1017.60	12	1017.68	17	1017.90	50	1018.56	258
8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.75	21	1017.75	21	1017.75	21	1018.04	78	1018.33	170
9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.89	34	1017.66	16	1017.72	20	1017.96	61	1018.46	220
10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1018.06	61	1017.66	16	1017.75	21	1018.33	170	1018.31	163
11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1018.12	78	1017.64	14	1017.85	30	1018.33	170	1018.29	157
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1018.10	72	1017.78	23	1017.72	19	1018.31	163	1018.31	163
13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1018.14	82	1017.86	31	1017.84	29	1018.35	177	1018.29	157
14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.77	22	1017.61	12	1017.72	20	1018.29	157	1018.14	105
15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.73	17	1017.63	14	1017.87	31	1018.29	157	1018.29	155
16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1018.10	72	1017.80	25	1017.62	13	1017.86	31	1018.32	166	1018.27	142
17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1018.10	72	1017.66	16	1017.64	14	1017.87	31	1018.27	142	1018.17	112
18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.85	30	1017.63	14	1017.66	16	1017.93	40	1018.31	163	1018.10	93
19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.82	27	1017.64	14	1017.73	20	1017.93	40	1019.31	577	1018.25	142
20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.66	16	1017.73	17	1017.79	24	1017.91	37	1019.39	627	1018.31	163
21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.77	22	1017.60	12	1017.72	19	1018.10	72	1019.27	563	1018.10	93
22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.72	19	1017.85	30	1017.70	18	1018.12	75	1019.00	442	1018.23	134
23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.82	27	1017.94	40	1017.73	20	1018.11	74	1019.46	650	1018.40	197
24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.83	28	1017.77	22	1017.83	28	1018.27	121	1019.06	468	1018.33	170
25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.77	22	1017.81	26	1017.73	20	1018.22	106	1018.96	425	1018.06	83
26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.79	24	1017.80	25	1017.88	32	1017.99	48	1018.79	352	1018.29	155
27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.64	14	1017.79	24	1017.83	28	1018.12	75	1018.62	282	1018.21	128
28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.65	15	1017.77	22	1017.68	17	1018.20	100	1018.54	251	1018.18	117
29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.70	18	1017.95	42	1017.87	31	1018.13	75	1018.50	235	1018.18	117
30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.68	17	1017.73	17	1017.79	24	1018.23	109	1018.33	170	1018.20	125
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1017.80	25	1017.57	11	.....	.....	1018.10	72	.....	.....	1018.18	117

Daily Gauge Height and Discharge of Grand River at Conestogo for 1914

Drainage Area 538 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	1018.10	93	1020.46	1200	1019.23	70	1021.92	2130	1019.33	590	1017.98	65	1017.73	30	1017.66	25	1017.94	57	1017.73	30	1017.94	57	1019.73	783
2	1018.10	93	1020.25	875	1019.22	70	1022.87	2760	1018.83	370	1018.08	88	1017.68	25	1017.58	18	1018.31	163	1017.79	35	1017.94	57	1019.79	817
3	1018.14	105	1020.18	530	1019.29	70	1021.62	1920	1018.66	300	1018.06	83	1017.77	33	1017.66	25	1018.27	150	1017.79	35	1017.94	57	1019.60	716
4	1018.10	93	1019.96	390	1019.32	70	1020.54	1250	1018.58	267	1018.00	68	1017.87	45	1017.62	20	1018.29	157	1017.64	23	1017.98	65	1019.31	582
5	1017.96	100	1019.79	340	1019.33	70	1020.00	935	1018.52	243	1017.98	65	1017.71	28	1017.64	23	1018.18	117	1017.68	25	1017.96	61	1018.96	425
6	1018.16	110	1019.71	315	1019.31	70	1019.58	707	1018.53	247	1017.87	45	1017.81	38	1017.58	18	1017.92	53	1017.75	30	1018.06	83	1018.50	235
7	1018.23	135	1019.96	320	1019.39	70	1019.33	590	1018.77	345	1017.79	36	1017.79	35	1017.62	20	1018.18	117	1017.76	32	1017.98	65	1018.52	244
8	1018.25	143	1019.73	315	1019.32	70	1019.37	608	1018.96	425	1018.06	83	1017.79	35	1017.66	25	1018.14	105	1017.73	30	1017.87	45	1018.39	193
9	1018.14	105	1019.71	315	1019.23	70	1019.18	522	1018.75	338	1017.94	57	1017.77	33	1017.54	15	1018.16	110	1017.77	33	1017.79	36	1018.44	212
10	1018.14	105	1019.60	275	1019.34	50	1019.06	468	1018.52	243	1018.01	70	1017.64	23	1017.66	25	1018.12	98	1017.80	37	1017.87	45	1018.54	251
11	1018.14	105	1019.52	195	1019.31	45	1019.16	513	1018.49	233	1017.98	65	1017.58	18	1017.58	18	1017.92	53	1017 87	45	1017.94	57	1018.62	251
12	1018.14	105	1019.50	150	1019.33	75	1019.16	513	1018.50	235	1017.87	45	1017.79	35	1017.70	28	1018.00	68	1017.68	25	1018.00	68	1018.52	212
13	1018.25	100	1019.46	100	1019.31	93	1019.08	477	1018.51	240	1017.79	36	1017.71	28	1017.75	30	1017.83	42	1018.02	73	1018.27	150	1018.35	135
14	1018.42	87	1019.37	70	1019.35	140	1018.96	425	1018.42	205	1017.68	25	1017.85	43	1017.79	35	1017.79	35	1018.08	88	1018.35	176	1018.35	135
15	1018.39	73	1019.37	70	1019.52	675	1019.09	483	1018.42	205	1017.92	53	1017.81	38	1017.66	25	1017.79	35	1018.14	105	1018.20	125	1018.43	150
16	1018.50	87	1019.37	70	1020.96	1500	1019.20	532	1018.31	163	1017.64	23	1017.77	33	1017.62	20	1017.77	33	1017.98	65	1018.85	377	1018.58	189
17	1018.58	100	1019.42	70	1023.16	2960	1019.20	532	1018.14	105	1017.67	25	1017.73	30	1017.60	20	1517.73	30	1018.04	78	1018.94	416	1018.48	137
18	1018.46	87	1019.37	70	1021.29	1710	1019.18	523	1018.18	117	1017.68	25	1017.68	25	1017.66	25	1017.73	30	1017.92	53	1018.46	220	1018.37	91
19	1018.44	77	1019.37	70	1020.60	1290	1019.29	573	1018.23	135	1017.75	33	1017.62	20	1017.85	43	1017.66	24	1017.92	53	1018.66	300	1018.46	102
20	1018.48	77	1019.37	70	1019.96	910	1019.79	818	1018.06	83	1017.73	30	1017.68	25	1018.02	73	1017.68	25	1017.96	61	1018.37	185	1018.46	91
21	1018.52	93	1019.33	70	1019.92	890	1019.62	727	1018.12	98	1017.66	25	1017.61	20	1018.20	125	1017.66	24	1017.96	61	1018.46	220	1018.58	114
22	1018.59	90	1019.25	70	1019.66	748	1019.44	640	1018.00	68	1017.87	45	1017.57	18	1018.04	78	1017.66	24	1017.94	57	1018.27	150	1018.67	131
23	1018.64	87	1019.20	70	1019.16	513	1019.12	495	1018.16	110	1017.77	35	1017.64	23	1018.02	73	1017.73	30	1017.89	47	1018.37	185	1018.66	113
24	1018.75	110	1019.24	70	1019.08	477	1018.92	408	1017.94	57	1017.76	33	1017.68	25	1018.02	73	1017.87	45	1017.92	53	1018.64	292	1018.66	102
25	1018.75	125	1019.25	70	1019.29	575	1018.85	378	1018.08	88	1017.73	30	1017.64	23	1017.92	53	1017.87	45	1017.85	45	1018.42	205	1018.33	38
26	1018.77	135	1019.12	70	1021.00	1530	1019.16	513	1018.02	73	1017.75	33	1017.61	20	1017.90	50	1017.79	35	1017.75	32	1018.50	235	1018.37	38
27	1018.92	115	1018.83	70	1025.92	4800	1019.14	505	1018.04	78	1017.73	30	1017.62	20	1017.92	53	1017.58	18	1017.75	32	1018.56	259	1018.61	65
28	1019.04	280	1019.25	45	1023.92	3470	1018.87	388	1018.04	78	1017.68	25	1017.68	25	1017.83	42	1017.68	25	1017.73	30	1019.25	555	1018.60	65
29	1019.27	563	.....	....	1022.54	2540	1018.89	395	1018.02	73	1017.94	57	1017.66	25	1017.85	45	1017.71	28	1017.89	47	1019.12	496	1018.71	70
30	1019.75	795	.....	....	1023.87	3430	1019.54	687	1018.12	98	1017.85	45	1017.64	23	1017.75	32	1017.83	42	1017.96	61	1019.25	555	1018.66	75
31	1020.83	1420	.....	....	1022.83	2730	.....	....	1017.77	35	.....	....	1017.62	20	1017.79	35	.....	.....	1018.14	105	.....	....	1018.75	80

Monthly Discharge of Grand River at Conestogo for 1913

Drainage Area, 538 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	.....	.....	.....	.....	.....	.....	.....
February	.....	.....	.....	.....	.....	.....	.....
March	.....	.....	.....	.....	.....	.....	.....
April	.....	.....	.....	.....	.....	.....	.....
May	.....	.....	.....	.....	.....	.....	.....
June	.....	.....	.....	.....	.....	.....	.....
July	.....	.....	.....	.....	.....	.....	.....
August	82	10	28	.15	.02	.05	.06
September	43	12	21	.21	.02	.04	.04
October	121	16	46	.22	.03	.09	.10
November	650	46	236	1.21	.09	.44	.49
December	258	83	152	.48	.15	.28	.32
The period	650	10	97	1.22	.02	.18	1.01

Monthly Discharge of Grand River at Conestogo for 1914

Drainage Area 538 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	1,420	73	187	2.64	.14	.35	.40
February	1,200	45	226	2.23	.08	.42	.44
March	4,800	45	1,025	8.93	.08	1.91	2.20
April	2,760	378	747	5.13	.70	1.39	1.55
May	590	35	192	1.10	.07	.36	.41
June	88	23	45	.16	.04	.09	.10
July	45	18	27	.08	.03	.05	.06
August	125	15	38	.23	.03	.07	.08
September	163	18	59	.30	.03	.11	.12
October	105	23	49	.20	.04	.09	.10
November	555	36	193	1.03	.07	.36	.40
December	817	38	221	1.54	.07	.41	.47
The year	4,800	15	251	8.93	.03	.47	6.33

Grand River at Galt

Location —At the Concession Street bridge, in the Town of Galt, County of Waterloo.

Records Available —July 21st, 1913, to Dec. 31st, 1914.

Drainage Area —1,356 square miles.

Gauge —Vertical staff, 0 ft.—12 ft. on first left pier of bridge. Elev. of zero on gauge is 851.00, which has remained unchanged since established.

Channel —Solid rock bed.

Discharge Measurements —Made from the bridge for high flows, and during the low-water period at a permanent section located 150 feet upstream.

Floods —The flood of April, 1912, was the highest on record.

Control —The intermittent operation of the mill ¼ mile above causes serious fluctuations in the river stage at this section.

Winter Flow —Ice affects the relation between gauge height and discharge from December to the middle of March, winter measurements are made to determine this flow.

Accuracy —Discharge curve well defined for flows up to 6,000 sec.-ft. For flows above 6,000 sec.-ft. the data available are insufficient to definitely determine the discharge curve.

Observer —Charles Parker.

Discharge Measurements of Grand River at Galt in 1913-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1913							
July 21....	Roberts, E	110	116	1.44	851.89	167	.....
Aug. 20....	"	100	88	1.04	851.64	91	.....
Sept. 16....	"	100	88	1.03	851.64	90	.....
Oct. 23....	"	140	149	2.22	852.56	333	.....
Nov. 21....	"	200	916	2.16	854.59	1984	.....
Dec. 9....	"	180	574	.68	852.50	388	.....
" 16....	"	150	175	2.93	852.68	515	.....
1914							
Jan. 27....	"	140	157	2.73	852.73	428	....
Feb. 24....	"	145	200	1.42	852.42	286	.....
Mar. 19....	"	179	1173	3.05	856.08	3584	.....
" 28....	"	242	2215	7.21	860.64	15980	.....
" 30....	"	199	1872	5.41	859.25	10140	.....
April 1....	"	180	1513	4.12	857.75	6239	.....
" 3....	"	180	1573	4.12	857.81	6482	.....
" 3....	"	180	1570	4.07	357.81	6385	.....
" 4....	"	170	1235	2.80	856.00	3462	.....
" 24....	"	180	566	2.09	853.83	1187	.....
June 1....	"	120	136	1.97	852.29	268	.....
July 6....	"	139	202	.90	852.08	182	.....
" 6....	"	139	202	.90	852.08	181	.....
" 24....	"	136	171	.88	851.88	151	.....
" 25....	"	136	179	.89	851.89	161	.....
Aug. 7....	"	138	174	8.87	851.87	152	.....
" 25....	"	143	215	1.27	852.14	274	.....
Sept. 7....	"	143	217	1.17	852.18	253	.....
" 18....	"	141	205	1.19	852.10	242	.....
" 18....	"	141	220	1.07	852.18	235	.....
Oct. 17....	"	144	211	1.02	852.15	215	.....
" 17....	"	144	212	1.05	852.16	223	.....
" 26....	"	138	184	1.06	851.92	195	.....
" 26....	"	143	198	1.06	852.06	210	.....
Nov. 16....	"	146	326	1.68	852.93	550	.....

Daily Gauge Height and Discharge of Grand River at Galt for 1913

Drainage Area, 1,356 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1															851.68	108	851.73	123	851.85	160	852.15	237	852.72	470
2															851.65	100	851.77	135	851.93	190	852.08	215	852.66	440
3															851.63	90	851.77	135	851.95	200	852.20	253	852.75	485
4															851.71	118	851.77	135	851.81	148	852.26	275	852.61	417
5															851.65	199	851.75	130	851.64	95	852.27	277	852.62	423
6															851.65	100	851.71	118	851.04	230	852.17	242	852.46	353
7															851.64	95	851.73	123	851.95	200	852.06	204	852 52	378
8															851.71	118	851.71	118	851.97	210	852.19	251	852.39	323
9															851.79	140	851.69	112	852.00	220	852.42	337	852.50	370
10															852.26	318	851.67	107	851.93	190	852.96	600	852.58	403
11															852.33	340	851.64	95	851.87	170	853.08	670	852.54	387
12															852.08	240	851.65	100	851.64	95	852.69	455	852.41	333
13															852.04	230	851.60	80	852.02	228	852.62	423	852.48	360
14															852.00	220	851.62	90	851.98	215	852.73	475	852.37	315
15															851.89	175	851.64	95	852.02	228	852.67	445	852.48	246
16															851.88	170	851.64	95	851.95	200	852.52	377	852.68	450
17															851.75	130	851.73	123	852.02	228	852.50	370	852.50	370
18															851.75	130	851.79	140	851.99	215	852.39	323	852.37	315
19															851.73	123	851.85	160	851.91	185	852.64	431	852.31	295
20															851.64	95	851.83	150	851.87	170	855.42	2,715	852.14	233
21													851.89	172	851.69	110	851.81	148	852.18	280	854.50	1,750	852.28	282
22													851.91	185	851.87	170	851.85	160	852.23	305	854.12	1,420	852.14	233
23													851.85	160	851.85	160	851.91	185	852.27	318	854.16	1,470	852.10	220
24													851.77	135	851.87	170	851.83	150	852.45	390	854.33	1,600	852.25	272
25													851.81	148	851.83	150	851.73	123	852.46	395	853.77	1,170	852.28	282
26													851.77	135	851.76	135	851.91	185	852.38	360	853.50	985	852.12	226
27													851.75	130	851.83	150	851.69	112	852.33	340	853.28	840	852.14	233
28													851.81	148	851.87	170	851.60	80	852.29	325	853.04	645	852.14	233
29													851.79	140	851.79	140	851.83	150	852.33	340	852.89	560	852.16	239
30													851.76	135	851.81	148	851.98	215	852.33	340	852.70	460	852.16	239
31													851.71	118	851.79	140	.....	.....	852.39	365	.....	.....	852.23	265

Daily Gauge Height and Discharge of Grand River at Galt for 1914

Drainage Area, 1,356 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	851.92	169	854.20	2250	852.37	215	857.75	6200	853.96	1300	852.27	278	851.87	155	851.56	73	852.37	315	852.07	212	852.00	190	853.82	1200
2	852.04	203	853.50	950	852.79	215	859.25	9050	853.64	1053	852.29	285	852.20	252	851.54	70	852.59	407	852.02	197	852.02	197	854.42	1670
3	852.00	190	853.75	950	852.39	220	857.79	6250	853.25	777	852.27	278	852.12	228	851.57	75	852.76	490	851.70	108	852.10	220	854.20	1490
4	851.98	185	853.87	970	852.31	220	855.87	3260	853.12	696	852.33	300	852.03	198	852.00	190	852.54	387	851.63	91	852.12	228	853.82	1220
5	852.18	246	853.54	950	852.41	230	855.00	2240	853.33	830	852.31	295	851.96	180	852.03	200	852.37	315	852.06	207	852.19	250	853.39	900
6	852.20	253	853.64	830	852.45	235	854.40	1650	853.35	843	852.17	242	852.12	228	852.11	223	852.31	295	851.83	144	852.08	215	852.79	505
7	852.12	227	853.42	450	852.33	235	854.06	1370	853.33	830	852.14	233	852.12	228	851.84	145	852.14	233	851.87	155	852.12	228	852.39	315
8	852.04	203	853.18	370	852.29	240	853.96	1300	853.31	815	852.32	297	851.98	185	851.56	73	852.25	272	851.83	144	851.98	185	852.50	370
9	852.00	190	852.92	230	852.25	240	853.77	1175	853.18	730	852.31	295	852.07	212	851.48	55	852.11	225	851.79	133	851.96	180	852.24	267
10	852.25	272	853.00	245	852.33	250	853.54	1010	853.00	622	852.25	272	852.08	215	851.98	185	852.07	212	851.92	170	852.15	238	852.22	260
11	852.06	208	853.00	245	852.45	255	853.52	995	852.89	553	852.27	278	851.87	155	852.00	190	851.99	187	851.97	182	852.19	250	852.33	300
12	852.42	337	852.73	150	852.33	255	853.46	950	852.92	578	852.20	253	851.75	120	851.84	145	852.06	207	851.87	155	852.23	265	852.42	335
13	852.54	340	852.73	150	852.22	260	853.39	900	852.92	578	851.96	180	852.09	217	851.95	175	851.79	133	852.20	252	852.35	305	852.33	300
14	852.44	345	852.68	140	852.22	260	853.33	830	852.81	520	851.81	137	852.12	228	851.88	157	851.96	180	852.25	272	852.34	303	852.37	315
15	852.35	307	852.50	220	852.92	575	853.23	765	852.75	485	852.17	242	852.10	220	851.76	125	851.96	180	852.14	233	852.64	432	852.42	335
16	852.18	246	852.39	255	852.89	560	853.29	875	852.58	403	852.12	228	852.12	228	851.48	55	851.92	170	852.16	239	853.04	647	852.45	350
17	852.06	207	852.48	270	855.98	3400	853.48	935	852.50	370	852.10	220	851.91	265	851.91	167	852.08	213	852.16	239	853.44	905	852.32	295
18	852.27	277	852.52	270	857.25	5350	853.48	935	852.47	355	852.09	217	851.98	185	851.81	138	851.91	167	851.93	172	852.44	590	852.27	277
19	852.23	265	852.48	255	856.00	3450	853.54	1010	852.52	378	851.99	187	851.71	110	851.94	175	851.79	133	852.05	205	852.60	412	852.25	270
20	852.10	220	852.48	235	854.83	2075	854.00	1330	852.52	378	851.69	105	852,04	203	852.00	190	851.74	118	852.04	203	852.50	370	852.04	202
21	852.16	240	852.44	220	854.37	1620	854.37	1650	852.33	300	851.73	115	851.94	175	852,64	432	852.07	212	852.00	190	852.42	335	852.23	265
22	852.27	279	852.56	235	854.12	1420	854.04	1350	852.35	307	852.14	233	851.81	137	852.35	305	852.04	202	852.00	190	852.48	360	852.29	285
23	852.10	220	852.58	270	854.00	1330	853.87	1220	852.16	239	852.16	239	851.90	163	852.20	252	851.91	167	851.92	170	852.42	335	852.29	285
24	852.14	233	852.37	286	853.70	1100	853.60	1050	852.23	269	852.12	228	851.85	150	852.17	242	851.84	145	851.79	133	852.50	370	852.28	282
25	852.42	337	852.31	255	853.65	1060	853.44	960	852.31	295	852.12	228	851.65	95	852.17	242	851.86	152	851.87	155	852.48	360	852.04	202
26	852.50	370	852.27	277	854.87	2100	853.81	1190	852.39	323	852.11	225	851.55	71	852.18	245	851.75	122	851.89	160	852.62	420	852.12	226
27	852.50	370	852.27	277	859.25	9025	853.87	1230	852.50	370	851.92	268	851.82	140	852.07	209	851.61	85	852.02	197	852.72	470	852.27	277
28	852.73	475	852.23	215	860.45	11700	853.68	1083	852.58	403	851.94	274	851.80	135	851.89	160	851.83	144	851.96	180	853.34	835	852.31	294
29	853.02	635	.....	.....	859.08	8700	853.60	1023	852.42	337	852.16	240	851.85	147	851.88	158	852.04	203	852.06	207	853.56	1025	852.35	307
30	855.58	2880	.....	.....	858.95	8450	853.73	1120	852.29	285	852.04	203	851.91	167	851.76	125	851.95	178	852.08	215	853.47	930	852,37	315
31	854.92	2150	.....	.....	859.70	10000	.....	.....	852.23	265	.....	.....	851.74	118	852.05	205	.....	.....	852.16	239	.....	.....	852.44	345

Monthly Discharge of Grand River at Galt for 1913

Drainage Area, 1,356 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area.
January	.....	.....	.....	.....	.....	.....	.....
February	.....	.....	.....	.....	.....	.....	.....
March	.....	.....	.....	.....	.....	.....	.....
April	.....	.....	.....	.....	.....	.....	.....
May	.....	.....	.....	.....	.....	.....	.....
June	.....	.....	.....	.....	.....	.....	.....
July	.....	.....	.....	.....	.....	.....	.....
August	340	90	154	.25	.07	.11	.13
September	215	80	129	.16	.06	.10	.11
October	395	95	243	.29	.07	.18	.21
November	2715	204	683	2.00	.15	.50	.56
December	485	220	326	.36	.16	.24	.28
The period	2715	80	307	2.01	.06	.23	1.29

Monthly Discharge of Grand River at Galt for 1914

Drainage Area, 1,356 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	2,880	169	422	2.12	.12	.31	.36
February	2,250	140	445	1.66	.10	.33	.34
March	11,700	215	2,428	8.63	.16	1.79	2.06
April	9,050	765	1,826	6.67	.56	1.35	1.51
May	1,300	239	531	.97	.18	.39	.45
June	300	105	236	.22	.08	.17	.19
July	265	71	178	.20	.05	.13	.15
August	432	55	174	.32	.04	.13	.15
September	490	85	215	.36	.06	.16	.18
October	272	91	185	.20	.07	.14	.16
November	1,025	180	402	.76	.13	.30	.33
December	1,670	202	460	1.23	.15	.34	.39
The year	11,700	55	626	8.63	.04	.46	6.27

Grand River at Glenmorris

Location—At the Glenmorris Bridge, in the Village of Glenmorris, Township of South Dumfries, County of Brant.

Records Available—Discharge measurements, Aug., 1912, to Dec., 1914. Daily gauge heights, July, 1913, to Dec., 1914.

Drainage Area—1,385 square miles.

Gauge—Vertical staff, 0 ft.—12 ft. on left bank. Elev. of zero on gauge is 801.00, which has remained unchanged since established.

Channel—Permanent for both banks. The stream bed, however, is slightly shifting under flood conditions.

Discharge Measurements—Made from the bridge, and at a permanent wading section December to the middle of March. Winter measurements are made to determine the flow during the low-water period.

Floods—A severe flood occurred in April, 1912, cutting the right bank away and greatly increasing the width of the channel.

Control—The nearest dam is at Galt, about 8 miles upstream, the operation of which does not cause noticeable fluctuations in the river stage at this section.

Winter Flow—Ice affects the relation between gauge height and discharge. Measurements are taken to determine this flow, but during the ice period the water flowed on top of the ice, making accurate readings impossible.

Observer—Minnie Anderson.

Discharge Measurements of Grand River at Glenmorris in 1913-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1913							
July 22....	Roberts, E	267	430	1.86	802.36	418	.....
Aug. 15....	"	267	440	.86	802.36	378	.....
Sept. 19....	"	254	315	.46	802.26	145	.....
Oct. 15....	"	254	350	.62	802.30	217	.....
Nov. 20....	"	280	898	3.63	804.33	3249	.....
Dec. 9....	"	272	470	.99	802.51	466	.....
1914							
Jan. 26....	"	144	205	2.11	802.60	433	.....
Mar. 20....	"	280	898	2.81	804.04	2522	.....
April 3....	"	341	1,772	4.91	806.54	8449	.....
" 30....	"	272	736	2.31	803.45	1699	.....
May 19....	"	271	453	.97	802.64	442	.....
" 30....	"	180	229	1.04	802.54	239	.....
July 1....	"	155	134	1.02	802.29	138	.....
" 1....	"	160	147	1.14	802.33	168	.....
" 22....	"	157	135	1.02	802.29	138	.....
" 22....	"	157	139	1.00	802.29	140	.....
" 30....	"	151	115	.77	802.14	89	.....
" 30....	"	151	119	.77	802.14	92	.....
Aug. 8....	"	144	106	.67	802.10	71	.....
" 8....	"	144	108	.64	802.10	69	.....
" 22....	"	187	206	1.42	802.58	294	.....
Sept. 9....	"	192	199	1.40	802.50	279	.....
" 9....	"	192	190	1.31	802.47	248	.....
" 23....	"	183	181	1.31	802.43	238	.....
Oct. 10....	"	174	135	1.04	802.29	140	.....
" 10....	"	174	132	1.04	802.29	137	.....
" 10....	"	174	131	1.04	802.29	136	.....
" 10....	"	174	134	1.04	802.29	139	.....
" 16....	"	184	180	1.34	802.45	242	.....
" 16....	"	187	199	1.41	802.50	279	.....
" 21....	"	184	181	1.33	802.45	242	.....
" 21....	"	184	180	1.34	802.45	241	.....
Nov. 16....	"	191	283	2.07	802.91	588	.....
" 16....	"	191	285	2.06	802.91	587	.....
Dec. 5....	"	273	620	1.78	803.29	1105	.....

Daily Gauge Height and Discharge of Grand River at Glenmorris for 1913

Drainage Area 1,385 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.28	190	802.32	230	802.25	160	802.44	290	802.75	670
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.28	190	802.28	190	802.30	220	802.40	250	802.79	720
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.28	190	802.28	190	802.28	190	802.34	195	802.75	670
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.28	190	802.28	190	802.24	150	802.39	235	802.75	670
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.26	170	802.28	190	802.20	100	802.46	310	802.67	570
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.22	130	802.28	190	802.28	190	802.44	290	802.62	505
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.22	130	802.28	190	802.30	220	802.38	230	802.66	560
8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.20	100	802.28	190	802.33	240	802.39	235	802.62	505
9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.24	150	802.27	180	802.32	230	802.59	465	802.64	530
10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.49	430	802.26	170	802.30	220	802.89	860	802.58	450
11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.61	575	802.28	190	.....	.....	803.00	1010	802.58	450
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.45	380	802.28	190	.....	.....	802.85	780	802.54	405
13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.45	380	802.25	160	.....	.....	802.73	640	802.37	235
14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.45	380	802.23	135	.....	.....	802.75	670	802.29	175
15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.36	280	802.24	150	.....	.....	802.75	670	802.27	160
16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.28	190	802.24	150	.....	.....	802.66	560	802.23	130
17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.28	190	802.26	170	.....	.....	802.66	560	802.17	100
18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.28	190	802.29	210	.....	.....	802.60	480	802.17	100
19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.28	190	802.26	170	.....	.....	802.71	620	802.08	70
20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.28	190	802.28	190	.....	.....	803.79	2290	802.02	50
21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.36	280	802.24	150	802.28	190	.....	.....	804.04	2690	801.98	40
22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.36	280	802.36	280	802.32	230	802.31	225	803.62	1960	801.83	20
23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.34	250	802.36	280	802.32	230	802.39	310	803.62	1960	801.95	35
24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.32	230	802.36	280	802.34	250	802.50	440	803.87	2390	802.00	45
25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.32	230	802.36	280	802.33	240	802.50	440	803.50	1760	801.79	15
26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.28	190	802.36	280	802.30	220	802.58	540	803.25	1376	801.71	10
27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.28	190	802.36	280	802.30	220	802.50	440	803.12	1180	802.04	55
28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.28	190	802.36	280	802.20	100	802.53	470	802.96	950	802.00	45
29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.28	190	802.36	280	802.28	190	802.50	440	802.87	830	802.06	60
30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.28	190	802.36	280	802.28	190	802.50	440	802.81	750	802.08	70
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802.28	190	802.34	250	.....	.....	802.48	420	.....	.....	802.10	75

Gauge destroyed by school children. Elevation varied very little.

Daily Gauge Height and Discharge of Grand River at Glenmorris for 1914

Drainage Area 1,385 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	801.92	30	802.71	620	803.37	160	807.00	9680	803.25	1375	802.37	220	802.30	160	802.29	155	802.46	255	802.29	155	802.29	155	803.37	1200
2	801.92	30	803.08	1120	803.42	160	807.87	12600	803.25	1375	802.33	185	802.31	165	802.16	95	802.71	470	802.31	165	802.35	185	804.00	2400
3	801.87	20	803.06	1070	803.42	160	807.20	10250	803.16	1235	802.37	220	802.27	140	802.18	100	802.83	570	802.27	145	802.31	165	803.77	2000
4	801.92	30	803.08	1120	803.37	160	805.58	6000	803.20	1300	802.50	355	802.31	165	802.29	155	802.62	380	802.20	110	802.41	220	803.54	1550
5	801.87	20	803.16	1235	803.42	160	804.37	3330	803.20	1300	802.50	355	802.30	160	802.29	155	802.54	320	802.33	175	802.35	185	803.23	1020
6	802.10	75	803.29	1430	803.37	160	803.29	1430	803.20	1300	802.50	355	802.20	110	802.27	145	802.54	320	802.31	165	802.31	165	803.00	740
7	802.08	70	803.31	1300	803.37	160	803.16	1235	803.16	1235	802.37	220	802.29	155	802.25	130	802.46	255	802.23	120	802.33	175	802.50	290
8	801.98	40	803.66	1160	803.25	160	803.08	1125	803.20	1300	802.48	330	802.34	180	802.26	135	802.46	255	802.20	110	802.33	175	802.54	320
9	801.92	30	803.71	940	803.25	160	802.96	950	803.12	1185	802.46	310	802.29	155	802.13	85	802.42	225	802.27	145	802.35	185	802.56	330
10	801.95	35	803.26	670	803.29	160	802.79	720	803.00	1000	802.37	220	802.24	125	802.30	160	802.42	225	802.27	145	802.35	185	802.60	360
11	802.12	80	806.33	530	803.25	160	802.79	720	802.92	895	802.37	220	802.25	130	802.25	130	802.39	210	802.29	155	802.44	235	802.68	360
12	802.68	580	806.02	600	803.33	160	802.79	720	802.96	950	802.37	220	802.24	125	802.25	130	802.27	140	802.33	175	802.35	185	802.75	350
13	802.52	380	806.18	700	803.33	160	802.66	560	802.96	950	802.33	185	802.31	165	802.29	155	802.27	140	802.42	225	802.39	210	802.71	355
14	802.29	155	805.50	750	803.42	160	802.66	560	802.92	895	802.27	160	802.29	155	802.25	130	802.33	175	802.46	255	802.44	235	802.83	340
15	802.46	310	805.29	750	803.66	2025	802.62	480	802.75	670	802.29	180	802.30	160	802.21	115	802.33	175	802.39	210	802.62	380	803.04	318
16	802.52	380	804.87	670	804.42	1630	802.66	560	802.75	670	802.29	180	802.30	160	802.17	100	802.25	130	802.44	235	802.87	610	803.06	315
17	802.42	280	804.77	530	806.74	8950	802.87	830	802.62	480	802.29	180	802.33	175	802.24	125	802.29	155	802.39	210	803.20	980	802.98	322
18	802.35	200	804.67	400	806.50	8320	802.87	830	802.58	450	802.29	180	802.30	160	802.27	145	802.27	145	802.33	175	803.12	808	802.98	322
19	802.38	220	804.54	300	805.66	6200	802.83	780	802.56	420	802.29	180	802.30	160	802.33	175	802.29	155	802.39	210	802.79	530	803.00	320
20	802.44	270	804.42	220	804.00	2630	803.12	1185	802.50	355	802.25	140	802.26	135	802.31	165	802.16	100	802.35	185	802.62	380	803.12	308
21	802.35	200	804.29	160	803.50	1760	803.42	1630	802.50	355	802.23	130	802.29	155	802.50	290	802.31	165	802.43	230	802.54	320	803.10	310
22	802.44	270	804.20	160	803.46	1695	803.20	1300	802.46	310	802.29	180	802.20	110	802.51	290	802.31	165	802.35	185	802.50	290	803.20	300
23	802.44	270	803.92	160	803.42	1625	803.25	1370	802.42	270	802.35	220	802.26	135	802.46	255	802.34	180	802.37	195	802.56	330	803.18	304
24	802.50	355	803.79	160	803.08	1125	802.83	780	802.42	270	802.35	220	802.25	130	802.40	215	802.33	175	802.37	195	802.60	360	803.20	300
25	802.56	410	803.66	160	803.50	1760	802.75	670	802.54	405	802.35	220	802.31	165	802.35	185	802.33	175	802.29	155	802.60	360	803.27	290
26	802.60	480	803.58	160	803.60	1760	802.83	780	802.50	355	802.33	200	802.20	110	802.33	175	802.31	165	802.35	185	802.54	320	803.27	290
27	802.64	510	803.62	160	808.46	14650	803.00	1000	802.50	355	802.27	160	802.18	100	802.31	165	802.20	110	802.35	185	802.77	510	803.27	290
28	802.71	600	803.46	160	809.46	18550	802.83	780	802.54	405	802.31	190	802.26	135	802.29	155	802.23	120	802.36	190	803.23	1020	803.27	290
29	803.12	1140	.....	.....	808.20	13750	802.92	895	802.48	330	802.37	235	802.23	120	802.33	175	802.29	155	802.39	195	803.27	1070	803.31	287
30	804.04	2700	.....	.....	807.46	11450	802.83	780	802.46	310	802.27	160	802.22	115	802.29	155	802.27	145	802.39	210	803.23	1020	803.35	285
31	804.06	2730	.....	.....	809.20	17500	.....	.....	802.42	270	.....	.....	802.25	130	802.31	165	.....	.....	802.37	195	.....	.....	803.31	287

Monthly Discharge of Grand River at Glenmorris for 1913

Drainage Area, 1,385 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January[1]	.....	.....	.....	.....	.....	.....	.....
February	.....	.....	.....	.....	.....	.....	.....
March	.....	.....	.....	.....	.....	.....	.....
April	.....	.....	.....	.....	.....	.....	.....
May	.....	.....	.....	.....	.....	.....	.....
June	.....	.....	.....	.....	.....	.....	.....
July	.....	.....	.....	.....	.....	.....	.....
August	575	100	249	.42	.07	.18	.21
September	250	100	189	.18	.07	.14	.16
October	540	100	274	.39	.07	.20	.23
November	2,690	195	916	1.94	.14	.66	.73
December	720	10	264	.52	.01	.19	.22
The period	2.690	10	378	1.94	.01	.27	1.55

Monthly Discharge of Grand River at Glenmorris for 1914

Drainage Area, 1,385 Square Miles

Month.	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	2,730	20	416	1.97	.01	.30	.35
February	1,430	160	621	1.03	.12	.45	.47
March	18,550	160	3,797	13.39	.12	2.74	3.16
April	12,600	480	2,151	9.10	.35	1.55	1.73
May	1,375	270	741	.99	.19	.54	.62
June	355	130	217	.26	.09	.16	.18
July	180	100	143	.13	.07	.10	.12
August	290	95	158	.21	.07	.11	.13
September	570	100	212	.41	.07	.15	.17
October	255	110	180	.18	.08	.13	.15
November	1,070	155	398	.77	.11	.29	.32
December	2,400	285	540	1.73	.21	.39	.45
The year	18,550	20	800	13.39	.01	.58	7.85

Grand River at Brantford

Location—At the Toronto, Hamilton & Buffalo Ry. bridge, in the City of Brantford, County of Brant.

Records Available—Discharge measurements, Aug., 1912, to Dec., 1914. Daily gauge heights, July, 1913, to Dec. 31st, 1914.

Drainage Area—1,991 square miles.

Gauge—Vertical staff, 0 ft.—12 ft. on left abutment. Elev. of zero on gauge is 643.00, which has remained unchanged since established.

Channel—Permanent under ordinary conditions.

Discharge Measurements—From the bridge at all stages.

Floods—In April, 1912, a severe flood occurred. It reached the top of the dyke which protects West Brantford.

Control—The river stage at this cross-section is affected by the Western Counties dam, located 1,200 feet above this station. The extent of the effect is hard to determine, as the power plant when operating does not use a uniform flow. At the present time the plant is used for peak purposes only, and the gauge recorder's evening reading is likely to be taken when the turbines are running very low. This condition of course will show a greater mean gauge height than has really existed.

Winter Flow—The relation between gauge height and discharge is affected by ice from late December to about the middle of March. Winter readings are made to determine the winter discharge. Anchor ice prevented readings after first week in February, 1914.

Observer—John Anguish.

Discharge Measurements of Grand River at Brantford in 1913-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1913							
Aug. 13....	Roberts, E	238	628	.94	644.67	595	.....
Sept. 8....	"	203	592	.63	644.37	373	.....
Oct. 15....	"	215	357	.99	644.25	354	.....
Nov. 13....	"	248	803	1.05	645.04	845	.....
Dec. 8....	"	248	766	1.00	644.93	764	.....
1914							
Jan. 20....	"	188	491	.83	644.81	409	.....
Mar. 19....	"	373	2152	3.69	648.77	7954	.....
" 29....	"	373	2578	4.87	650.04	12538	.....
" 31....	"	373	3275	4.98	651.68	16328	.....
April 2....	"	373	2449	4.41	649.71	10798	.....
" 8....	"	281	1004	2.43	646.15	2443	.....
" 24....	"	281	844	1.79	645.62	1519	.....
May 23....	"	188	636	.91	644.67	598	.....
" 26....	"	203	837	1.01	644.93	845	.....
" 29....	"	220	616	.69	644.62	430	.....
June 29....	"	170	704	.68	644.50	480	.....
July 21....	"	203	657	.51	644.35	336	.....
" 23....	"	203	655	.35	644.21	233	.....
" 29....	"	198	611	.31	644.00	187	.....
" 23....	"	203	675	.41	644.28	281	.....
" 29....	"	198	611	.30	644.00	186	.....
Aug. 6....	"	228	663	.49	644.32	323	.....
" 13....	"	198	580	.20	643.83	116	.....
" 27....	"	188	643	.45	644.34	289	.....
" 27....	"	188	652	.55	644.42	359	.....
" 28....	"	188	616	.37	644.16	231	.....
" 28....	"	188	643	.50	644.34	318	.....
Nov. 4....	"	188	681	.73	644.55	496	.....
" 4....	"	188	681	.70	644.54	475	.....
" 5....	"	188	681	.66	644.50	451	.....
" 5....	"	188	681	.71	644.58	485	.....
" 19....	"	281	857	1.15	645.09	985	.....
" 19....	"	281	857	1.19	645.10	1018	.....
Dec. 3....	"	281	1191	2.31	646.28	2748	.....

Daily Gauge Height and Discharge of Grand River at Brantford for 1913

Drainage Area, 1991 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.21	250	644.36	430	644.32	335	644.75	660	645.00	915
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.15	210	644.36	430	644.44	415	644.75	660	644.83	740
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.21	250	644.32	335	644.48	445	644.62	550	645.04	960
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.36	355	644.36	430	644.42	400	644.62	550	644.96	865
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.28	285	644.34	340	644.36	355	644.75	660	644.96	865
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.30	315	644.28	300	644.48	445	644.73	640	644.94	830
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.34	340	644.26	280	644.44	400	644.58	525	644.92	820
8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.61	540	644.32	335	644.37	370	644.46	430	644.75	660	644.75	660
9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.55	500	644.44	415	644.32	335	644.48	445	644.73	640	644.75	660
10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.51	520	644.67	580	644.34	340	644.44	415	645.12	1050	644.75	660
11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.53	485	644.92	820	644.30	315	644.40	380	645.14	1080	644.93	835
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.55	500	644.71	630	644.30	315	644.46	430	645.12	1050	644.87	770
13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.53	485	644.67	580	644.17	230	644.42	400	644.96	865	644.68	600
14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.55	500	644.55	500	644.17	230	644.52	480	644.98	880	644.79	690
15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.54	495	644.49	450	644.27	290	644.25	275	645.04	960	644.60	530
16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.51	460	644.44	415	644.30	315	644.46	430	645.10	1025	644.64	570
17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.57	520	644.38	375	644.28	300	644.46	430	645.00	915	644.67	585
18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.51	460	644.44	415	644.28	300	644.54	490	644.96	865	644.71	630
19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.42	400	644.36	355	644.34	340	644.44	415	645.04	960	644.79	690
20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.44	415	644.38	375	644.28	300	644.60	535	646.23	2735	644.79	690
21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.53	485	644.34	340	644.30	315	644.65	570	647.42	5065	644.64	570
22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.46	430	644.48	445	644.34	340	644.56	515	646.52	3260	644.58	525
23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.53	485	644.48	445	644.34	340	644.67	590	646.21	2700	645.19	1140
24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.48	435	644.44	415	644.38	375	644.79	690	646.71	3620	644.67	585
25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.44	415	644.53	485	644.36	355	645.00	915	646.20	2680	644.87	770
26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.44	415	644.38	375	644.34	340	644.94	840	645.83	2080	644.83	740
27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.32	335	644.36	355	644.30	315	644.85	750	645.60	1725	644.75	660
28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.42	400	644.40	380	644.32	335	644.83	730	645.39	1425	644.68	600
29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.42	400	644.46	430	644.36	355	644.81	705	645.25	1225	644.67	585
30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.44	415	644.36	355	644.28	300	644.79	690	645.12	1050	644.73	640
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	644.38	375	644.40	380	.....	.....	644.73	645	.....	.....	644.62	550

Daily Gauge Height and Discharge of Grand River at Brantford for 1914

Drainage Area, 1,991 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	644.58	525	646.83	3840	645.31	1315	649.46	9995	645.98	2315	644.40	380	644.27	290	644.06	165	644.37	360	644.29	305	644.50	460	645.60	1720
2	644.56	515	646.20	2680	645.16	1110	649.87	11100	645.79	2015	644.29	305	644.29	305	643.81	30	645.04	950	644.29	305	644.50	460	646.27	2810
3	644.58	525	646.10	2515	645.25	1225	650.08	11700	645.52	1610	644.37	360	644.25	275	644.14	205	645.04	950	644.20	240	644.50	460	646.29	2840
4	644.54	495	646.16	2615	645.42	1460	648.18	6800	645.37	1380	644.46	430	644.27	290	644.25	275	644.81	705	644.08	175	644.46	430	645.98	2315
5	644.58	525	646.04	2420	645.33	1335	647.16	4500	645.23	1190	644.50	460	644.23	265	644.14	205	644.68	600	644.25	275	644.50	460	645.58	1700
6	644.66	585	645.58	1685	645.37	1380	646.58	3375	645.10	1025	644.56	505	644.33	340	644.16	225	644.60	535	644.25	275	644.50	460	645.29	1270
7	644.58	525	645.46	1515	645.37	1380	646.20	2680	645.23	1190	644.48	450	644.31	325	644.06	165	644.46	425	644.29	305	644.54	495	645.04	960
8	644.62	550	645.33	1330	645.31	1315	646.29	2840	645.79	2015	646.10	2515	644.23	265	644.08	175	644.44	415	644.29	305	644.33	340	644.87	775
9	644.58	525	645.08	1010	645.31	1315	645.89	2170	645.54	1630	645.66	1820	644.31	325	643.85	50	644.42	405	644.20	240	644.46	430	644.87	775
10	644.54	495	645.08	1010	645.25	1225	645.71	1895	645.35	1350	645.02	935	644.29	305	643.92	70	644.39	375	644.10	175	644.42	400	644.71	630
11	644.58	525	645.50	1575	645.20	1150	645.46	1520	645.12	1050	644.79	690	644.04	140	644.10	175	644.31	325	644.04	140	644.48	450	644.87	775
12	644.50	465	646.00	2350	645.18	1135	645.62	1750	645.12	1050	644.58	530	643.92	70	644.04	140	644.16	225	644.18	230	644.50	460	644.75	660
13	644.50	465	645.92	2220	645.20	1150	645.42	1455	645.16	1110	644.52	480	644.25	275	644.08	175	644.12	190	644.18	230	644.56	505	644.79	690
14	654.56	515	645.71	1900	645.33	1335	645.37	1380	645.14	1075	644.35	350	644.25	275	644.14	205	644.20	240	644.33	340	644.54	495	644.66	575
15	644.75	660	645.73	1925	645.52	1670	645.33	1330	645.00	915	644.31	325	644.25	275	644.04	140	644.16	225	644.50	450	644.58	525	644.46	430
16	644.71	630	645.66	1810	646.65	3560	645.37	1380	644.96	865	644.23	265	644.25	275	643.92	70	644.12	190	644.54	495	644.75	660	644.66	550
17	644.58	525	645.66	1810	647.50	5245	645.42	1460	644.87	770	644.25	275	644.25	275	644.00	120	644.12	190	644.60	535	645.20	1150	644.92	780
18	644.66	585	645.64	1780	648.96	8665	645.48	1550	644.75	660	644.08	170	644.21	250	644.02	130	644.10	175	644.48	435	645.18	1130	644.92	700
19	644.83	740	645.54	1635	648.58	7700	645.48	1550	644.75	660	644.12	190	644.21	250	644.08	175	643.98	105	644.52	470	644.98	880	644.96	600
20	644.79	690	645.46	1520	647.54	5330	645.66	1810	644.71	630	644.21	250	644.19	245	644.23	265	643.92	70	644.46	430	644.87	775	644.87	600
21	644.75	660	645.37	1380	646.66	3525	646.18	2660	644.79	690	644.16	225	644.25	275	644.20	240	644.00	120	644.46	430	644.75	660	644.92	500
22	644.71	630	645.25	1225	646.66	3525	646.00	2350	644.71	630	644.18	240	644.13	200	644.60	535	644.08	175	644.46	430	644.83	730	644.96	400
23	644.83	740	645.42	1460	646.23	2735	645.79	2015	644.62	550	644.20	250	644.13	200	644.46	430	644.16	225	644.40	380	644.85	750	644.92	350
24	644.77	670	645.35	1360	646.04	2415	645.62	1750	644.58	525	644.23	265	644.13	200	644.35	350	644.10	175	644.37	360	644.83	730	644.98	325
25	644.94	830	645.31	1315	645.92	2220	645.46	1520	644.62	550	644.20	250	644.00	120	644.31	325	644.42	405	644.31	325	644.75	660	644.96	320
26	645.04	960	645.23	1190	646.29	2830	645.12	1050	644.71	630	644.18	240	643.96	100	644.14	205	644.20	240	644.39	375	644.83	730	644.87	300
27	645.14	1080	645.20	1150	649.46	9995	646.08	2490	644.77	670	644.27	290	644.12	190	644.33	340	644.25	275	644.37	360	644.87	775	644.87	300
28	645.25	1225	645.16	1110	652.66	19370	645.83	2080	644.79	690	644.31	325	644.19	245	644.33	340	644.25	275	644.37	360	645.20	1150	645.04	250
29	645.58	1685	.....	.....	651.33	15280	645.62	1750	644.62	550	644.39	375	644.19	245	644.16	225	644.33	340	644.44	415	645.60	1720	645.04	250
30	646.37	2990	.....	.....	649.66	10515	645.66	1810	644.62	550	644.44	415	644.06	165	644.06	165	644.33	340	644.50	450	645.54	1640	645.04	250
31	647.62	5520	.....	.....	651.92	1790	.....	.....	644.44	415	.....	.....	644.08	175	644.14	205	.....	.....	644.44	360	.....	.....	645.04	250

Monthly Discharge of Grand River at Brantford for 1913

Drainage Area 1,991 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile.			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area.
January							
February							
March							
April							
May							
June							
July	540	335	953	.27	.17	.23	.20
August	820	210	408	.41	.11	.20	.23
September	430	230	330	.22	.12	.17	.19
October	915	275	516	.46	.14	.26	.30
November	5,065	525	1,426	2.54	.26	72	.80
December	1,140	525	707	.57	.26	.36	.41
The period	5,065	210	645	2.54	.11	.32	2.13

Monthly Discharge of Grand River at Brantford for 1914

Drainage Area, 1991 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile.			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area.
January	5,520	465	904	2.77	.23	.45	.52
February	3,840	1,010	1,760	1.93	.51	.88	.92
March	19,370	1,110	4,015	9.73	.56	2.02	2.33
April	11,700	1,050	3,057	5.88	.53	1.54	1.72
May	2,315	415	998	1.16	.21	.50	.58
June	2,515	170	485	1.26	.09	.24	.27
July	340	70	240	.17	.04	.12	.14
August	535	30	211	.27	.02	.11	.13
September	950	70	341	.48	.04	.17	.19
October	535	140	342	.27	.07	.17	.20
November	1,720	340	699	.86	.17	.35	.39
December	2,840	250	827	1.43	.13	.42	.48
The year	19,370	30	1,151	9.73	.02	.58	7.87

Grand River at York

Location—At the highway bridge in the Village of York, Township of Oneida, County of Haldimand.

Records Available—June 25th, 1913, to Dec. 31st, 1914.

Drainage Area—2,311 square miles.

Gauge—Vertical staff, 0 ft.—6 ft. on the first pier from left bank and 6 ft.—12 ft. on the left abutment. The elev. of zero on the gauge is 593.00, and has remained unchanged since established.

Channel—Small stones form the bed of this stream, which shifts during flood periods, changing conditions of control below section.

Discharge Measurements—These are taken from the highway bridge, and at a permanent low-water section located 800 feet above the bridge during the low-water period.

Floods—An exceptionally severe flood occurred in April, 1912, the river rising to a gauge height of 606.00, which indicates a flow of over 100,000 second feet. The dam below the bridge was wrecked, the water cutting around the right abutment and greatly increasing the width of the channel.

Control—The nearest dam is 5 miles upstream, at Caledonia. The intermittent operation of the mill located here causes fluctuations in the flow at this section.

Winter Flow—From December to March the relation between gauge height and discharge is affected by ice. Measurements were made to determine the winter flow, but from February to the spring break-up anchor ice prevented further meter readings during the winter.

Accuracy—With the exception of the variations in gauge height, caused through the operation of the plant at Caledonia, the measurements here are fair.

Observer—Stanley Brown.

Discharge Measurements of Grand River at York in 1913-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1913							
June 25....	Roberts, E	300	563	1.00	593.98	563	.....
Aug. 19....	"	295	542	1.04	393.97	565	.....
Sept. 11....	"	289	414	.87	393.69	363	.....
Oct. 13....	"	265	314	1.00	593.65	314	.....
Nov. 6....	"	285	536	.92	593.96	491	.....
Dec. 10....	"	321	1189	.62	594.15	738	.....
1914							
Jan. 19....	"	290	425	1.06	593.92	453	.....
Mar. 28 (a)	"	397	3529	7.38	600.17	260	.....
April 1....	"	387	2634	4.63	598.00	12213	.....
" 6....	"	379	1892	2.09	596.04	3969	.....
" 7....	"	379	1876	1.71	595.67	3207	.....
June 8....	"	270	614	1.16	594.10	716	.....
" 16....	"	273	548	.94	593.75	517	.....
" 23....	"	277	402	1.16	593.71	468	.....
July 14....	"	245	309	1.12	593.42	346	.....
" 15....	"	245	290	1.08	593.37	313	.....
Aug. 11....	"	237	236	1.04	593.11	247	.....
" 11....	"	237	240	1.04	593.12	251	.....
" 12....	"	237	244	1.01	593.12	246	.....
" 12....	"	237	221	.98	593.00	218	.....
Sept. 11....	"	270	385	1.25	593.63	483	.....
" 12....	"	270	387	1.34	593.66	519	.....
" 25....	"	275	374	1.18	593.56	443	.....
" 25....	"	275	374	1.19	593.56	445	.....
" 26....	"	274	360	1.17	593.51	419	.....
" 26....	"	274	357	1.14	593.50	409	.....
Oct. 8....	"	269	309	1.14	593.40	354	.....
" 9....	"	260	300	1.07	593.39	320	.....
" 22....	"	276	369	1.20	593.56	442	.....
" 23....	"	278	383	1.18	593.58	451	.....
Nov. 9....	"	279	391	1.18	593.62	462	.....
" 9....	"	278	386	1.20	593.60	464	.....
Dec. 10....	"	280	472	1.30	593.94	614	.....
" 11....	"	280	493	1.25	593.94	615	.....

(a) Ice conditions

Daily Gauge Height and Discharge of Grand River at York for 1913

Drainage Area, 2,311 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1													593.90	500	593.50	275	593.71	370	593.73	385	594.23	750	594.52	1020
2													593.94	570	593.54	250	593.73	385	593.75	400	593.98	540	594.44	920
3													593.92	530	593.42	188	593.71	370	593.73	385	593.98	540	594.52	1000
4													593.90	500	593.46	205	593.67	350	593.52	235	593.96	530	594.48	950
5													593.90	500	593.46	205	593.91	295	593.50	225	594.00	555	594.39	880
6													594.00	600	593.48	210	593.65	338	593.46	205	594.00	555	594.39	880
7													594.14	709	593.50	225	593.62	300	593.44	190	593.96	530	594.35	820
8													594.04	635	593.50	225	593.65	338	593.58	275	593.94	525	594.39	880
9													594.02	610	593.50	225	593.64	329	593.60	285	593.85	455	594.27	750
10													593.98	570	593.44	215	593.61	291	543.65	338	594.46	950	594.21	700
11													593.98	570	593.56	265	593.61	291	593.63	315	595.00	1630	594.39	880
12													593.94	555	594.00	600	593.56	260	593.67	350	594.81	1400	594.52	1020
13													593.96	560	594.06	650	593.58	275	593.65	338	594.62	1150	594.48	950
14													593.94	550	593.98	585	593.58	275	593.76	410	594.54	1050	594.44	920
15													593.96	560	593.94	565	593.56	260	593.64	320	594.58	1100	594.29	800
16													593.96	560	593.90	500	593.56	260	593.58	275	594.64	1200	594.37	860
17													593.96	560	593.67	350	593.48	215	593.58	275	594.60	1120	594.44	920
18													593.88	490	593.71	370	593.50	225	593.60	285	594.64	1050	594.44	920
19													593.84	465	593.97	565	593.52	240	593.44	215	594.64	1200	594.45	960
20													593.71	370	593.71	370	593.52	240	593.62	300	595.02	1700	594.48	980
21													593.81	440	593.59	275	593.58	275	593.75	400	596.96	7500	594.52	1020
22													593.77	425	593.67	350	593.71	370	593.79	430	596.42	5300	594.52	1020
23													593.75	400	593.75	400	593.71	375	593.83	465	596.25	4700	594.44	920
24													593.71	370	593.61	295	593.73	385	593.88	500	596.21	4600	594.48	950
25													593.69	355	593.69	360	593.73	385	594.04	630	595.87	3550	594.50	1000
26													593.69	365	593.73	385	593.79	430	594.19	790	595.50	2600	594.44	920
27													593.65	338	593.71	370	593.82	455	594.27	860	595.21	2000	594.44	920
28													593.65	338	593.67	350	593.79	430	594.19	790	594.93	1550	594.44	920
29													593.59	275	593.65	338	593.75	400	594.12	705	594.68	1250	594.35	850
30													593.54	240	593.62	300	593.77	415	594.12	705	594.54	1050	594.37	860
31													593.59	275	593.73	235	.....	.....	594.12	705	.....	.....	594.44	920

Daily Gauge Height and Discharge of Grand River at York for 1914

Drainage Area, 2,311 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Dis-charge	Gauge Ht.	Dis-charge	Gauge Ht.	Dis-charge	Gauge Ht.	Dis-charge	Gauge Ht.	Dis-charge	Gauge Ht.	Dis-charge	Gauge Ht.	Dis-charge	Gauge Ht.	Dis-charge	Gauge Ht.	Dis-charge	Gauge Ht.	Dis-charge	Gauge Ht.	Dis-charge	Gauge Ht.	Dis-charge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*See-ft.*	*Feet*	*Sec-ft.*
1	594.21	730	597.75	11050	594.73	385	598.54	15400	594.58	1100	593.83	440	593.58	410	593.10	240	593.66	470	593.35	332	593.46	378	594.83	1400
2	594.12	640	596.42	5300	594.66	365	597.75	11000	594.50	1000	593.77	400	593.62	435	593.10	240	594.16	760	593.35	332	593.54	413	595.27	2125
3	594.04	585	595.54	2700	594.75	360	598.50	15000	593.96	525	593.75	390	593.62	435	593.08	235	594.27	840	593.29	308	593.56	423	595.53	2775
4	594.18	710	595.62	2800	594.75	410	597.46	9700	594.71	1220	593.81	420	593.60	420	593.08	235	594.18	775	593.33	323	593.60	440	595.31	2160
5	594.16	685	595.54	2700	595.00	465	596.83	7000	594.98	1600	594.00	555	593.46	355	593.00	220	594.18	775	593.08	240	593.58	430	594.66	1180
6	594.04	585	595.79	2800	595.16	515	596.08	4200	595.62	2880	594.00	555	593.54	390	592.92	200	594.00	650	593.43	360	593.52	405	594.54	1020
7	594.04	585	595.71	2600	594.85	490	595.71	3100	596.52	5700	593.94	510	593.62	430	593.00	220	593.87	580	593.42	360	593.58	430	594.54	1020
8	594.06	605	597.75	2100	594.77	450	595.56	2700	596.04	4100	594.58	1075	593.62	430	593.00	220	593.79	538	593.33	323	593.56	423	594.46	985
9	594.00	550	596.71	1700	594.42	400	595.25	2100	595.29	2180	595.29	2130	593.64	440	593.00	220	593.68	480	593.31	315	593.54	435	594.27	840
10	593.92	495	596.85	1400	594.68	385	595.12	1850	595.04	1700	594.79	1310	593.54	390	593.00	220	593.64	460	593.25	293	593.50	395	594.00	650
11	594.04	545	596.83	1200	593.87	360	595.06	1750	594.20	700	594.29	850	593.54	390	593.04	230	593.62	450	593.08	240	593.50	395	593.96	585
12	593.87	465	596.85	1100	593.62	320	594.08	615	594.29	800	594.12	755	593.52	380	593.06	235	593.58	432	593.37	340	593.56	423	593.85	510
13	593.81	430	596.66	960	593.62	315	594.06	600	594.54	1700	593.96	625	593.37	320	593.13	250	593.54	413	593.42	360	593.62	450	593.81	485
14	593.73	380	596.56	825	594.43	930	593.79	420	594.79	1400	593.75	500	593.35	310	593.12	245	593.54	413	593.44	370	593.64	460	593.78	445
15	593.75	390	596.46	700	596.00	3950	593.71	365	594.83	1450	593.96	625	593.42	335	593.04	230	593.44	370	593.56	423	593.68	480	593.92	500
16	593.73	380	596.54	605	596.54	5800	593.71	365	594.87	1500	593.63	430	593.54	390	593.04	230	593.42	360	593.62	450	593.81	550	594.12	586
17	593.85	450	596.23	675	597.00	7700	593.73	380	594.77	1300	593.62	430	593.46	355	593.12	245	593.42	360	593.62	450	594.25	825	594.62	890
18	593.81	430	596.87	770	599.16	19200	593.79	420	594.25	750	593.62	430	593.46	355	593.16	255	593.37	340	593.62	450	594.50	1010	594.44	730
19	593.83	450	595.77	630	599.83	23900	593.71	365	594.16	680	593.73	490	593.50	370	593.18	260	593.35	332	593.64	460	594.46	985	594.35	647
20	593.87	465	595.60	515	597.96	12200	593.79	420	594.12	645	593.51	390	593.46	355	593.18	260	593.31	315	593.68	480	594.42	950	594.42	664
21	594.04	585	595.20	470	596.60	6000	594.71	1220	594.18	700	593.42	335	593.37	320	593.35	315	593.23	289	593.60	440	594.37	915	594.18	512
22	594.00	550	594.94	420	595.79	3300	595.16	1900	594.04	585	593.58	410	593.40	330	593.54	390	593.42	360	593.52	405	594.08	705	594.18	485
23	593.96	525	594.87	395	595.50	2600	594.71	1220	594.06	595	593.75	500	593.44	350	593.75	500	593.39	348	593.55	405	594.20	787	594.04	400
24	594.00	550	594.73	380	594.81	1350	594.12	645	594.00	550	593.75	500	593.35	310	593.83	545	593.44	370	583.48	387	594.12	730	594.10	405
25	593.92	495	594.79	360	594.50	1080	594.58	1100	593.96	525	593.62	430	573.21	285	593.85	560	593.48	387	593.44	370	594.10	717	593.92	400
26	594.04	545	594.81	350	594.87	1450	596.00	4000	594.00	550	593.62	430	593.16	255	593.77	510	593.46	378	593.48	387	594.08	705	593.79	343
27	594.46	960	594.79	350	596.12	4200	595.75	3200	594.00	550	593.56	400	593.20	265	593.75	500	593.14	260	593.54	413	594.20	787	593.85	370
28	594.62	1100	594.75	365	600.12	26000	595.44	2500	593.87	465	593.58	410	593.20	265	593.75	500	593.37	340	593.52	405	594.25	825	593.68	300
29	595.42	2500	.....	.....	599.66	22570	595.33	2250	593.85	450	593.64	440	593.20	265	593.58	410	593.31	315	593.50	395	594.71	1250	593.66	293
30	596.00	4000	.....	.....	598.33	14200	595.04	1700	593.96	545	593.62	430	593.16	255	593.50	395	593.33	323	593.54	413	594.75	1300	593.73	319
31	597.34	9100	.....	.....	599.20	19500	.....	.....	593.93	495	.....	.....	593.08	235	593.50	395	.....	.....	593.48	387	.....	.....	593.68	300

Monthly Discharge of Grand River at York for 1913

Drainage Area, 2,311 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	.....	.....	.....	.....	.....	.....	.....
February	.....	.....	.....	.....	.....	.....	.....
March	.....	.....	.....	.....	.....	.....	.....
April	.....	.....	.....	.....	.....	.....	.....
May	.....	.....	.....	.....	.....	.....	.....
June	.....	.....	.....	.....	.....	.....	.....
July	709	240	477	.31	.10	.21	.24
August	650	183	350	.28	.08	.15	.17
September	455	215	327	.20	.09	.14	.16
October	860	205	419	.37	.09	.18	.21
November	7,500	455	1,754	3.25	.20	.76	.84
December	1,020	700	913	.44	.30	.40	.46
The period	7,500	183	707	3.25	.08	.31	2.08

Monthly Discharge of Grand River at York for 1914

Drainage Area, 2311 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	9,100	380	1,015	3.94	.16	.44	.51
February	11,050	350	1,652	4.78	.15	.72	.74
March	26,000	315	5,848	11.25	.14	2.53	2.92
April	15,400	365	3,266	6.67	.16	1.41	1.57
May	5,700	450	1,255	2.47	.19	.54	.62
June	2,130	335	587	.92	.15	.25	.28
July	440	235	350	.19	.10	.15	.17
August	560	200	314	.24	.09	.14	.16
September	840	260	449	.36	.11	.19	.21
October	480	240	375	.21	.10	.16	.18
November	1,300	378	647	.56	.16	.28	.31
December	2,775	293	785	1.20	.13	.34	.39
The year	26,000	200	1,377	11.25	.09	.60	8.06

Irvine River near Salem

Location —At the highway bridge known as Watt's Bridge on the third line between the 11th and 12th concessions, lot 14, Township of Nichol, County of Wellington.

Records Available —Old section, July to October, 1913. Nov. 1st, 1913, to Oct. 31st, 1914, present section.

Drainage Area —64 square miles.

Gauge —Vertical staff, 0 ft.—9 ft. on centre pier. Elev. of zero on gauge is 1297.00, which has remained unchanged since established.

Channel —Solid rock.

Discharge Measurement —Made from bridge and permanent section located 100 feet above for the low-water period.

Floods —The flood water is confined in channel, which is high and rocky.

Winter Flow —During part of December, up to the middle of March, ice greatly affects the relation between gauge height and discharge. During February and March anchor ice affected this section, making the winter readings that were taken to determine the flow rather unreliable.

Control —The river stage at this section is not affected by any dams, etc.

Accuracy —The records here are good. The flow natural.

Observer —Annie Barber.

Discharge Measurements of Irvine River near Salem in 1913-14

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1913							
July 30....	Roberts, E	8	2	.49	1262.92	1	.....
Aug. 30....	"	10	4	.66	1263.17	2	.....
Sept. 20....	"	10	4	.69	1263.17	3	.....
Oct. 28....	"	17	6	1.05	1297.25	6	.....
Nov. 25....	"	49	20	2.27	1297.66	46	.....
Dec. 18....	"	17	3	3.76	1297.29	12	.....
1914							
Feb. 2 (a)	"	40	40	1.83	1299.29	73	.....
Mar. 2....	"	15	5	.87	1297.25	4	.....
" 24....	"	25	35	2.21	1297.79	78	.....
April 7....	"	52	28	1.87	1297.79	53	.....
" 20....	"	55	42	3.19	1297.95	136	.....
June 11....	"	25	5	.35	1297.00	1	.....
July 8....	"	36	3	.28	1296.96	1	.....
" 9....	"	36	4	.25	1296.96	1	.....
" 9....	"	36	4	.27	1296.96	1	.....
Aug. 4....	"	35	3	.28	1296.92	1	.....
" 4....	"	35	3	.30	1296.92	1	.....
" 4....	"	35	3	.27	1296.92	1	.....
" 5....	"	35	3	.28	1296.92	1	.....
Sept. 1....	"	40	6	.56	1297.08	3	.....
" 1....	"	40	6	.55	1297.08	3	.....
" 1....	"	40	7	.53	1297.08	3	.....
" 16....	"	41	5	.30	1297.00	1	.....
" 16....	"	41	5	.30	1297.00	1	.....
Oct. 6....	"	41	5	.28	1297.00	1	.....
" 6....	"	41	5	.28	1297.00	1	.....
Nov. 25....	"	47	24	.54	1297.33	13	.....
" 25....	"	47	24	.52	1297.33	12	.....
Dec. 28....	"	46	18	.51	1297.33	9	.....

(a) Ice conditions

Daily Gauge Height and Discharge of Irvine River near Salem for 1913

Drainage Area, 64 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1															1262.84	1	1262.97	2	1262.92	1	1297.19	3	1297.40	23
2															1262.88	1	1262.97	2	1262.92	1	1297.17	3	1297.46	25
3															1262.88	1	1262.97	2	1262.92	1	1297.17	3	1297.46	23
4															1262.90	1	1262.97	2	1262.92	1	1297.19	3	1297.43	20
5															1262.90	1	1262.97	2	1262.92	1	1297.19	3	1297.42	19
6															1262.90	1	1262.92	1	1262.92	1	1297.18	3	1297.39	16
7															1262.90	1	1262.92	1	1262.92	1	1297.17	3	1297.42	19
8																	1262.92	1	1262.92	1	1297.26	6	1297.50	27
9																	1262.90	1	1262.92	1	1297.35	13	1297.42	19
10																	1262.88	1	1262.92	1	1297.48	25	1297.33	11
11																	1262.88	1	1262.92	1	1297.31	10	1297.33	11
12																	1262.88	1	1263.05	2	1297.31	10	1297.33	11
13																	1262.88	1			1297.33	11	1297.33	11
14																	1262.88	1			1297.26	6	1297.33	11
15																	1262.88	1			1297.33	11	1297.33	11
16																	1262.88	1			1297.33	11	1297.33	11
17															1262.97	1	1262.88	1			1297.27	7	1297.33	11
18															.....	.....	1262.90	1			1297.25	6	1297.29	8
19															1262.92	1	1262.97	2			1297.62	41	1297.29	8
20															1262.92	1	1263.17 1262.97	3			1297.92	94	1297.27	7
21															1262.92	1	1262.97	2			1297.88	86	1297.25	6
22															1262.94	1	1262.97	2			1297.75	62	1297.25	6
23															1263.03	2	1263.05	2			1297.87	84	1297.25	6
24															1263.01	2	1263.05	2			1297.87	84	1297.23	5
25															.....	.....	1263.01	2			1297.70	53	1297.23	5
26															1263.17 1262.99	3	1262.99	2			1297.60	39	1297.19	3
27															1262.97	2	1262.97	2			1297.58	36	1297.25	6
28															1262.97	2	1262.97	2			1297.50	27	1297.23	5
29															1262.97	2	1262.92	1			1297.48	25	1297.21	4
30													1262.92	1	1263.01	2	1262.92	1			1297.45	22	1297.20	3
31													1262.88	1	1263.01	2	1262.92	1			.....	....	1297.21	4

Gauge affected by backwater, elev. varied but little.

Gauge affected by backwater. Now cancelled.

See second gauge for this stream where conditions are normal

El. 1263.35
Dis. 6.93

Daily Gauge Height and Discharge of Irvine River near Salem for 1914.

Drainage Area, 64 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	1297.21	4	1298.66	67	1297.25	6	1298.78	378	1297.66	47	1297.06	1	1297.06	1	1296.88	1	1297.25	6	1297.00	1	1297.17	1	1298.33	12
2	1297.21	4	1298.96	72	1297.25	6	1299.41	650	1297.54	32	1297.02	1	1297.04	1	1296.94	1	1297.33	12	1297.00	1	1297.17	1	1297.96	103
3	1297.24	5	1298.83	120	1297.08	1	1298.20	161	1297.48	25	1297.00	1	1297.01	1	1296.93	1	1297.29	9	1297.00	1	1297.16	1	1297.79	68
4	1297.25	6	1298.75	161	1297.08	1	1298.06	125	1297.42	19	1297.04	1	1297.00	1	1296.92	1	1297.16	2	1297.00	1	1297.16	1	1297.75	61
5	1297.29	9	1298.66	156	1297.08	1	1297.45	100	1297.42	19	1297.01	1	1297.00	1	1296.90	1	1297.13	2	1297.00	1	1297.16	1	1297.42	19
6	1297.33	12	1299.42	120	1297.00	0	1297.83	76	1297.42	19	1297.00	1	1297.00	1	1296.88	1	1297.20	2	1297.00	1	1297.16	1	1297.42	19
7	1297.33	12	1299.20	96	1297.00	0	1297.79	68	1297.42	19	1297.00	1	1297.00	1	1296.87	1	1297.12	2	1297.00	1	1297.12	1	1297.42	19
8	1297.33	12	1299.50	89	1297.00	0	1297.79	68	1297.48	25	1297.14	1	1297.00	1	1296.85	1	1297.11	2	1297.00	1	1297.12	1	1297.35	13
9	1297.33	12	1299.16	78	1297.00	0	1297.66	47	1297.39	16	1297.08	1	1296.95	1	1296.84	1	1197.08	1	1297.00	1	1297.12	1	1207.33	12
10	1296.33	12	1299.00	56	1297.00	0	1297,75	62	1297.33	12	1297.02	1	1296.94	1	1296.90	1	1297.08	1	1297.18	2	1297.12	1	1297.33	12
11	1299.33	12	1298.66	41	1297.00	0	1297.42	19	1297.31	10	1297.00	1	1296.93	1	1296.92	1	1297.08	1	1297.25	6	1297.12	1	1297.25	6
12	1297.33	12	1298.33	21	1297.00	0	1297.33	12	1297.29	9	1297.00	1	1296.92	1	1296.92	1	1297.08	1	1297.23	5	1297.15	1	1297.29	9
13	1297.42	19	1297.96	12	1297.04	1	1297.50	27	1297.33	12	1297.00	1	1296.93	1	1296.93	1	1297.08	1	1297.18	2	1297.33	12	1297.26	6
14	1297.44	21	1297.81	2	1297.25	2	1297.42	19	1297.31	10	1297.00	1	1296.96	1	1296.94	1	1297.00	1	1297.12	2	1297.39	17	1297.20	2
15	1297.44	21	1297.66	2	1297.50	28	1297.50	27	1297.25	6	1297.00	1	1296.96	1	1296.93	1	1297.00	1	1297.08	1	1297.46	23	1297.20	2
16	1297.44	21	1297.58	2	1300.04	900	1297.50	27	1297.25	6	1297.00	1	1296.94	1	1296.97	1	1297.00	1	1297.12	1	1297.66	47	1297.20	2
17	1297.42	19	1297.56	5	1299.42	650	1297.58	36	1297.16	2	1297.00	1	1296.94	1	1296.99	1	1297.00	1	1297.16	2	1297.66	47	1297.18	1
18	1297.42	19	1297.50	7	1298.83	400	1297.58	36	1297.16	2	1297.00	1	1296.93	1	1297.00	1	1296.98	1	1297.12	2	1297.75	61	1297.23	4
19	1297.46	23	1297.42	7	1298.54	280	1297.75	62	1297.16	2	1297.00	1	1296.92	1	1297.00	1	1296.98	1	1297.12	2	1297.42	19	1297.29	8
20	1297 50	27	1297.33	7	1298.42	240	1298.12	140	1297.16	2	1297.00	1	1296.90	1	1297.16	1	1296.96	1	1297.08	1	1297.42	19	1297.29	8
21	1297.50	27	1297.33	6	1298.42	240	1297.79	69	1297.14	2	1297.01	1	1296.89	1	1287.25	1	1296.96	1	1297.08	1	1297.33	12	1297.29	8
22	1297.52	29	1297.29	5	1298.08	130	1297.75	61	1297.12	2	1297.08	1	1296.86	1	1297.18	1	1297.00	1	1297.08	1	1297.33	12	1297.29	8
23	1297.52	29	1297.25	4	1297.83	76	1297.64	44	1297.16	2	1297.08	1	1296.86	1	1297.10	1	1297.02	1	1297.08	1	1297.31	10	1297.33	11
24	1297.68	34	1297.25	4	1297.77	66	1297.58	36	1297.12	2	1297.14	2	1296.92	1	1297.06	1	1296.96	1	1297.08	1	1297.29	9	1297.37	11
25	1297.92	41	1297.25	4	1297.92	94	1297.54	32	1297.16	2	1297.10	2	1296.93	1	1297.01	1	1296.96	1	1297.08	1	1297 29	9	1297.33	10
26	1297.83	47	1297.25	4	1299.04	490	1297.75	62	1297.14	2	1297.08	1	1296.91	1	1297.00	1	1296.96	1	1297.08	1	1297.29	9	1297.33	10
27	1297.81	41	1297.25	4	1299.12	520	1297.64	44	1297.12	2	1297.06	1	1296.90	1	1296.95	1	1296.96	1	1297.08	1	1293.75	61	1297.33	10
28	1297.93	41	1297.25	4	1298 99	465	1297.62	41	1297.10	2	1297.07	1	1296.92	1	1296.96	1	1296.96	1	1297.08	1	1297.75	61	1297.33	10
29	1298.25	53	.....	....	1298.70	345	1297.68	50	1297.08	1	1297.08	1	1296.91	1	1297.04	1	1296.98	1	1297.10	1	1297.58	36	1297.25	6
30	1298.92	65	.....	....	1299.75	795	1297.79	69	1297.12	2	1297.07	1	1296.89	1	1297.08	1	1297.00	1	1297.15	2	1297.68	36	1247.25	6
31	1298.50	63	.....	....	1298 62	311	.....	....	1297.08	1	.....	....	1296.88	1	1297 06	1	.....	.....	1297.16	2	.....	....	1297.25	6

Monthly Discharge of Irvine River near Salem for 1913

Drainage Area, 64 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November	94	3	26	1.47	.05	0.41	.46
December	27	3	12	.42	.05	.18	.21
The period..	94	3	19	1.42	.05	.29	.67

Monthly Discharge of Irvine River near Salem for 1914

Drainage Area, 64 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	65	4	24	1.02	.06	.38	.44
February	161	2	41	2.52	.03	.65	.67
March	900	0	195	14.06	.00	3.05	3.52
April	650	12	88	10.15	.19	1.38	1.54
May	47	1	10	.73	.02	.16	.18
June	2	1	1	.03	.02	.02	.02
July	1	1	1	.02	.02	.02	.02
August	1	1	1	.02	.02	.02	.02
September	12	1	2	.19	.02	.03	.03
October	6	1	1	.09	.02	.02	.02
November	61	1	17	.95	.02	.27	.30
December	103	1	15	1.61	.02	.24	.28
The year	900	0	33	14.06	0.00	.52	7.04

Conestogo River at St. Jacob's

Location —At the bridge in the Village of St. Jacob's, Township of Woolwich. County of Waterloo.

Records Available —July 16th, 1913, to Dec. 31st, 1914.

Drainage Area —312 square miles.

Gauge —Vertical staff, 0 ft.—12 ft. on right abutment. Elev. of zero on gauge is 1057.00, which has remained unchanged since established.

Channel —Loose gravel forms the bed of stream, and under high water conditions is shifting. The banks may be classed as fairly permanent.

Discharge Measurements —Made from the bridge, and a permanent low-water cross-section is located 800 feet down stream for the low-water period.

Control —The power plant used at night up to 11 p.m. and the same plant used for milling purposes during the day cause large fluctuations in the river stage at this section.

Accuracy —These records cannot be classed as better than fair.

Observer —Amy Niebergall.

Discharge Measurements of Conestogo River at St. Jacob's in 1913-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1913							
July 16....	Roberts, E	56	31	1.17	1058.32	36	.....
Aug. 27....	"	51	20	.55	1058.01	11	.....
Sept. 23....	"	51	18	.44	1057.96	8	.....
Oct. 29....	"	50	33	1.49	1058.45	50	.....
Nov. 27....	"	130	171	1.25	1058.95	214	.....
Dec. 18....	"	118	131	.80	1058.64	105	.....
1914	"						
Feb. 5....	"	140	330	1.04	1059.42	344	.....
March 5 (a)	"	79	47	1.00	1058.75	47	.....
" 26....	"	170	937	2.30	1060.75	21	.....
April 8....	"	145	246	1.00	1058.95	247	.....
" 23....	"	115	216	1.21	1059.00	260	.....
June 12....	"	107	121	.24	1058.08	29	.....
July 10....	"	22	7	.62	1057.64	4	.....
Aug. 5....	"	27	10	.65	1057.71	6	.....
Sept. 1....	"	30	13	.47	1057.71	6	.....
" 6....	"	30	13	.45	1057.71	5	.....
" 1....	"	30	13	.45	1057.71	5	.....
" 11....	"	52	22	.93	1058.08	21	.....
" 16....	"	52	22	1.00	1058.08	22	.....
Oct. 6....	"	21	6	.35	1057.60	2	.....
" 6....	"	21	6	.35	1057.60	2	.....
Nov. 26....	"	105	108	.63	1058.40	68	.....
Dec. 30....	"	37	27	1.04	1058.25	28	.....

(a) Ice conditions

Daily Gauge Height and Discharge of Conestogo River at St. Jacob's for 1913

Drainage Area, 312 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec ft.*	*Feet*	*Sec-ft.*
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1058.00	9	1058.00	9	1058.00	9	1058.88	182	1059.80	820
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1057.95	7	1058.04	12	1058.00	9	1058.83	161	1059.77	780
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1057.91	6	1058.04	12	1058.00	9	1058.96	219	1059.68	700
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1057.91	6	1058.04	12	1058.04	12	1058.87	177	1059.68	700
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1057.91	6	1057.95	8	1057.95	7	1058.96	219	1059.64	670
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1057.91	6	1057.95	8	1057.93	6	1058.88	182	1059.62	660
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1057.95	7	1057.91	6	1057.95	7	1058.88	182	1059.58	630
8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1058.00	9	1057.91	6	1057.95	7	1058.83	161	1059.50	560
9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1058.08	15	1057.95	7	1057.95	7	1058.71	122	1059.12	320
10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1058.12	18	1057.95	7	1057.95	7	1958.83	161	1058.94	209
11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1058.08	15	1057.95	7	1057.97	8	1058.64	103	1058.83	161
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1058.08	15	1057.95	7	1057.94	6	1058.54	80	1058.83	161
13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1058.00	9	1057.91	6	1058.04	12	1058.50	71	1058.75	134
14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1058.00	9	1057.91	6	1057.97	8	1058.52	74	1058.67	110
15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1058.00	9	1057.91	6	1058.08	15	1058.62	98	1058.75	134
16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1058.32	37	1058.00	9	1057.91	6	1058.06	14	1058.67	104	1058.79	134
17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1058.24	30	1058.00	9	1058.00	9	1057.97	8	1058.62	98	1058.71	122
18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1058.16	21	1058.00	9	1057.95	7	1057.95	7	1058.56	84	1058.60	93
19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1058.00	9	1058.00	9	1057.95	7	1057.95	7	1060.29	1400	1058.71	122
20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1057.91	6	1058.00	9	1057.95	7	1058.12	18	1059.71	740	1058.69	116
21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1057.95	7	1057.95	7	1058.00	9	1058.16	21	1059.62	660	1058.71	122
22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1057.95	7	1057.97	8	1058.00	9	1058.04	12	1059.54	600	1058.58	88
23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1058.04	12	1058.00	9	1057.96	8	1058.08	15	1059.62	660	1058.54	80
24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1057.95	7	1058.00	9	1057.93	6	1058.16	21	1059.39	480	1058.46	64
25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1058.00	9	1058.00	9	1057.95	7	1058.10	17	1059.44	510	1058.35	46
26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1057.95	7	1058.04	12	1057.95	7	1058.12	18	1059.04	263	1058.42	57
27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1057.91	6	1058.01	10	1058.04	12	1058.33	40	1059.50	560	1058.37	49
28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1057.91	6	1058.04	12	1058.05	13	1058.25	30	1059.92	950	1058.35	46
29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1057.95	7	1058.00	9	1058.04	12	1058.46	63	1059.75	770	1058.42	57
30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1057.95	7	1058.00	9	1058.00	9	1058.62	99	1059.79	800	1058.46	64
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1057.95	7	1058.00	9	.....	.....	1058.81	158	.....	....	1058.39	52

Daily Gauge Height and Discharge of Conestogo River at St. Jacob's for 1914

Drainage Area, 312 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	1058.25	33	1061.92	770	1058.77	37	1060.42	1600	1058.89	186	1057.83	7	1057.60	4	1057.62	4	1057.87	8	1057.71	4	1057.77	4	1059.42	500
2	1058.29	38	1059.96	560	1058.77	39	1062.16	4800	1058.77	140	1057.71	4	1057.60	4	1057.66	4	1057.94	11	1057.73	4	1057.87	7	1059.37	475
3	1058.29	38	1059.83	430	1058.79	43	1060.29	1380	1058.60	93	1057.68	4	1057.60	4	1057.60	4	1057.73	4	1057.73	4	1057.92	10	1059.35	460
4	1058.27	35	1059.56	350	1058.75	44	1059.71	730	1058.50	71	1057.79	6	1057.60	4	1057.56	4	1058.16	24	1057.73	4	1058.02	15	1059.08	300
5	1058.25	33	1059.44	345	1058.75	48	1059.42	500	1058.50	71	1057.75	5	1057.60	4	1057.58	4	1057.79	4	1057.71	4	1057.83	7	1058.66	108
6	1058.29	38	1059.50	260	1058.71	50	1059.06	276	1058.42	57	1057.77	5	1057.62	4	1057,58	4	1057.98	12	1057.79	6	1057.87	7	1058.68	113
7	1058.37	49	1059.48	194	1058.71	50	1058.83	161	1058.46	64	1057.81	6	1057.70	4	1057.60	4	1058.02	15	1057.81	6	1057.87	7	1058.52	75
8	1058.25	33	1059.50	150	1058.62	43	1058.87	177	1058.42	57	1057.87	8	1057.58	4	1057.58	4	1057.92	10	1057.83	7	1057.89	8	1058.62	98
9	1058.33	43	1059.46	120	1058.71	39	1058.94	209	1058.42	57	1057.66	4	1057.54	4	1057.60	4	1057.79	4	1057.79	6	1057.85	7	1058.71	122
10	1058.29	38	1059.37	75	1058.71	39	1058.62	98	1058.25	33	1057.64	4	1057.58	4	1057.64	4	1057.78	4	1057.81	6	1057.87	7	1058.50	72
11	1058.27	35	1059.37	56	1058.62	39	1058.77	140	1058.27	35	1057.68	4	1057.58	4	1057.66	4	1057.79	4	1057.85	7	1057.98	12	1058.39	52
12	1058.20	28	1059.25	44	1058.62	39	1058.73	128	1058.25	33	1057.71	4	1057.60	4	1057.58	4	1057.81	6	1057.96	12	1058.10	19	1058.31	40
13	1058.12	21	1059.16	32	1058.71	42	1058.62	98	1058.27	35	1057.60	4	1057.64	4	1057.58	4	1057.75	5	1058.16	24	1058.12	21	1058.08	18
14	1058.29	38	1059.04	23	1058.71	120	1058.60	93	1058.25	33	1057.60	4	1057.75	5	1057.60	4	1057.73	4	1057.89	8	1058.18	25	1058.18	26
15	1058.33	43	1058.94	19	1059.58	550	1058.62	98	1058.20	28	1057.60	4	1057.71	4	1057.62	4	1057.71	4	1057.87	7	1058.27	35	1058.20	28
16	1058.39	52	1058.83	13	1060.71	2050	1058.71	122	1058.25	33	1057.58	4	1057.68	4	1057.64	4	1057.68	4	1057.85	7	1058.85	169	1058.00	13
17	1058.37	49	1058.37	11	1061.71	3940	1058.71	122	1058.12	20	1057.64	4	1057.71	4	1057.64	4	1057.71	4	1057.85	7	1058.87	176	1057.85	7
18	1058.44	60	1058.71	16	1061.50	3530	1058.68	113	1058.12	20	1057.64	4	1057.68	4	1057.67	4	1057.71	4	1057.89	8	1058.81	154	1058.10	18
19	1058.56	84	1058.79	22	1060.54	1770	1058.75	134	1058.08	18	1057.68	4	1057.60	4	1057.69	4	1057.68	4	1057.77	4	1058.73	128	1057.92	9
20	1058.54	80	1058.83	29	1060.20	1270	1059.08	290	1058.00	13	1057.62	4	1057.62	4	1057.77	5	1057.66	4	1057.83	7	1058.68	113	1057.56	4
21	1058.50	71	1058.79	33	1059.64	680	1059.16	350	1057.98	12	1057.58	4	1057.62	4	1058.08	18	1057.68	4	1057.77	4	1058.77	140	1057.92	8
22	1058.46	64	1058.77	39	1059.56	650	1059.00	240	1057.92	10	1057.81	6	1057.60	4	1058.12	21	1057.66	4	1057.85	7	1058.52	75	1058.02	11
23	1058.48	67	1058.75	39	1059.35	460	1058.87	177	1057.92	10	1057.60	4	1057.58	4	1057.96	12	1057.92	10	1057.94	11	1058.35	46	1058.23	24
24	1058.48	67	1058.85	39	1059.08	290	1058.71	122	1057.89	8	1057.66	4	1057.60	4	1057.92	10	1057.96	12	1057.83	7	1058.37	49	1058.20	20
25	1058.66	108	1058.75	39	1059.25	400	1058.71	122	1057.85	7	1057.68	4	1057.60	4	1057.92	10	1057.96	12	1057.77	4	1058.20	28	1058.27	26
26	1058.89	186	1058.79	39	1061.16	2900	1058.71	122	1057.77	5	1057.62	4	1057.60	4	1057.71	4	1057.87	8	1057.77	4	1058.60	93	1058.23	21
27	1058.77	140	1058.79	37	1063.46	7400	1058.71	122	1057.83	7	1057.68	4	1057.66	4	1057.77	5	1057.83	7	1057.71	4	1058.96	219	1058.16	15
28	1059.06	170	1058.80	37	1062.33	5150	1058.16	108	1057.79	6	1057.62	4	1057.66	4	1057.75	5	1057.92	10	1057.77	4	1059.27	400	1058.23	18
29	1059.71	250	.....	....	1061.66	3850	1058.71	122	1057.79	6	1057.85	7	1057.68	4	1058.00	13	1057.81	6	1057.77	4	1059.00	240	1058.50	44
30	1063.75	1700	.....	....	1062.79	6050	1058.68	113	1058.04	15	1057.62	4	1057.64	4	1057.73	4	1057.75	5	1057.87	7	1059.04	263	1058.37	28
31	1063.66	1700	.....	....	1062.54	4600	.....	....	1057.87	8	.....	....	1057.66	4	1057.66	4	.....	....	1057.73	4	.....	....	1058.35	23

Monthly Discharge of Conestogo River at St. Jacob's for 1913

Drainage Area 312 Square Miles

Month	Discharge in Second-feet.			Discharge in Second-feet per Square Mile.			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	.....	.....	.....	.....	.....	.....	.....
February	.....	.....	.....	.....	.....	.....	.....
March	.....	.....	.....	.....	.....	.....	.....
April	.....	.....	.....	.....	.....	.....	.....
May	.....	.....	.....	.....	.....	.....	.....
June	.....	.....	.....	.....	.....	.....	.....
July	.....	.....	.....	.....	.....	.....	.....
August	18	6	9	.06	.02	.03	.03
September	13	6	8	.04	.02	.03	.03
October	158	6	22	.50	.02	.07	.08
November	1,400	71	362	4.49	.23	1.16	1.29
December	820	46	260	2.63	.15	.83	.95
The period	1,400	6	132	4.49	.02	.42	2.38

Monthly Discharge of Conestogo River at St. Jacob's for 1914

Drainage Area 312 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	1,700	21	174	5.45	.07	.56	.64
February	770	11	137	2.47	.04	.44	.46
March	7,400	37	1,491	23.72	.12	4.78	5.51
April	4,800	93	429	15.38	.30	1.37	1.53
May	186	5	38	.60	.02	.12	.14
June	8	4	4	.03	.01	.01	.01
July	5	4	4	.02	.01	.01	.01
August	21	4	6	.07	.01	.02	.02
September	24	4	7	.08	.01	.02	.02
October	24	4	6	.08	.01	.02	.02
November	400	4	82	1.28	.01	.27	.30
December	500	4	89	1.60	.01	.29	.33
The year	7,400	4	207	23.72	.01	.66	8.99

Speed River at Caraher's Bridge

Location —At the bridge named Caraher's above the junction of the Speed and Eramosa Rivers, 3¾ miles from the City of Guelph.

Records Available —Oct. 27th, 1913, to Dec. 31st, 1914.

Drainage Area —80.5 square miles.

Gauge —Vertical staff, 0 ft.—12 ft. on right abutment. Elev. of zero on gauge is 1126.00, which has remained unchanged since established.

Channel —Somewhat shifting from year to year.

Discharge Measurements —From the bridge and from a permanent low-water cross-section located 300 feet down stream.

Winter Flow —From December to March this section is affected by ice and the open channel curve is not applicable. Winter readings, however, are taken to determine this charge.

Control —At this section the river stage is not seriously affected by a dam located upstream.

Accuracy —Conditions at this station are favorable for good results, although the shifting of the river bed during high water may necessitate the use of more than one curve.

Observer —Hugh Caraher.

Discharge Measurements of Speed River at Caraher's Bridge near Guelph, in 1913-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1913							
July 28....	Roberts, E	28	12	.73	1127.93	9	.....
Aug. 21....	"	28	12	.50	1127.75	6	.....
Sept. 19....	"	35	15	.86	1127.97	13	.....
Oct. 27....	"	50	35	.70	1128.08	24	.....
Nov. 24....	"	69	102	.92	1128.58	93	.....
Dec. 17....	"	50	27	.47	1127.94	13	.....
1914							
Jan. 31 (a)	"	58	96	1.46	1129.25	140	.....
Mar. 1 (a)	"	60	20	.46	1128.76	9	.....
" 24 (a)	"	61	63	1.27	1129.26	80	.....
" 29....	"	70	193	2.42	1129.66	466	.....
April 7....	"	62	62	1.36	1128.56	85	.....
" 21....	"	60	81	1.46	1128.66	119	.....
June 10....	"	51	23	.26	1127.87	5	.....
July 7....	"	44	15	.21	1127.81	3	.....
" 7....	"	44	15	.23	1127.81	3	.....
Aug. 5....	"	37	9	.14	1127.75	1	.....
Sept. 2....	"	59	80	2.00	1128.92	161	.....
" 2....	"	59	81	1.98	1128.92	161	.....
" 17....	"	45	20	.34	1127.92	6	.....
" 17....	"	45	16	.22	1127.84	3	.....
" 17....	"	46	17	.26	1127.86	4	.....
Oct. 5....	"	45	22	.37	1127.93	8	.....
" 5....	"	45	20	.37	1127.90	7	.....
" 5....	"	45	20	.37	1227.87	7	.....
" 5....	"	45	19	.33	1127.84	6	.....
Nov. 23....	"	57	48	.80	1128.35	38	.....
" 23....	"	57	48	.80	1228.35	38	.....
" 27....	"	59	76	1.67	1128.75	127	.....
" 27....	"	59	80	1.84	1128.83	148	.....
Dec. 31 (a)	"	60	38	.72	1129.00	27	.....

(a) Ice conditions

Daily Gauge Height and Discharge of Speed River, at Caraher's Bridge near Guelph for 1913

Drainage Area, 80.5 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1																					1128.04	20	1128.16	31
2																					1128.08	23	1128.12	27
3																					1127.75	2	1128.08	23
4																					1127.75	2	1128.08	23
5																					1127.92	10	1128.08	23
6																					1128.04	20	1128.16	31
7																					1128.00	16	1128.04	20
8																					1127.92	10	1128.08	23
9																					1128.08	23	1128.12	27
10																					1128.46	73	1128.21	37
11																					1128.46	73	1128.12	27
12																					1128.21	37	1128.12	27
13																					1128.42	27	1128.00	16
14																					1128.17	33	1128.08	23
15																					1128.25	42	1128.00	16
16																					1128.08	23	1128.04	20
17																					1128.12	27	1128.04	20
18																					1128.12	27	1128.17	33
19																					1128.58	98	1127.92	10
20																					1128.87	180	1127.87	7
21																					1128.67	121	1127.87	7
22																					1128.50	80	1128.12	27
23																					1128.83	168	1128.12	27
24																					1128.62	109	1128.00	16
25																					1128.37	58	1127.96	13
26																					1128.33	53	1128.20	36
27																					1128.33	53	1128.33	53
28																					1128.33	53	1127.83	5
29																					1128.29	47	1128.25	42
30																					1128.25	42	1128.25	42
31																							1127.96	13

Daily gauge height and discharge of Speed River at Caraher's Bridge near Guelph for 1914

Drainage Area, 80.5 Square Miles.

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	1128.20	36	1129.50	109	1128.76	9	1128.66	115	1128.33	53	1127.71	4	1127.70	2	1127.66	2	1128.08	23	1127.75	2	1128.08	23	1128.46	74
2	1128.20	36	1129.16	81	1128.68	11	1130.16	685	1128.23	40	1127.60	2	1127.70	2	1127.70	2	1128.92	194	1127.71	2	1128.12	27	1128.50	80
3	1128.00	16	1129.16	60	1128.77	14	1129.42	370	1128.27	44	1127.60	2	1127.75	2	1127.67	2	1128.54	89	1127.68	2	1128.16	31	1128.52	84
4	1128.00	16	1128.96	56	1128.68	14	1128.96	219	1128.20	36	1127.58	2	1127.75	2	1127.66	2	1128.60	103	1127.68	2	1128.14	29	1128.46	74
5	1128.00	16	1129.00	53	1128.75	11	1128.50	80	1128.20	36	1127.62	2	1127.75	2	1127.66	2	1128.04	19	1127.68	2	1128.08	23	1128.42	66
6	1128.20	36	1129.00	45	1128.62	11	1128.33	53	1128.20	36	1127.60	2	1127.83	4	1127.62	2	1128.16	31	1127.66	2	1128.04	19	1128.20	36
7	1128.33	63	1129.00	43	1128.58	13	1128.66	119	1128.18	34	1127.64	2	1127.83	4	1127.64	2	1128.46	74	1127.71	2	1128.00	16	1127.96	13
8	1128.33	63	1129.00	36	1128.54	19	1128.46	73	1128.12	27	1127.60	2	1127.92	10	1127.64	2	1128.18	33	1127.68	2	1128.00	16	1127.94	11
9	1128.33	63	1129.00	31	1128.50	18	1128.31	50	1128.08	23	1127.66	2	1127.89	8	1127.66	2	1128.06	21	1127.66	2	1128.00	16	1127.92	10
10	1128.25	42	1128.87	27	1128.71	16	1128.20	36	1128.02	18	1127.64	2	1127.83	4	1127.68	2	1128.02	18	1127.75	2	1127.92	10	1127.96	11
11	1128.00	16	1128.83	26	1128.87	10	1128.23	40	1128 10	25	1127.64	3	1127.75	2	1127.73	2	1127.92	10	1127.75	2	1127.92	10	1128.04	12
12	1128.16	31	1128.75	23	1128.96	12	1128.20	36	1128.12	27	1127.64	3	1127.66	2	1127.75	2	1127.89	8	1127.83	5	1128.04	19	1128.12	13
13	1128.42	66	1128.71	20	1128.71	14	1128.23	40	1128.14	29	1127.71	2	1127.75	2	1127.73	2	1127.83	5	1127.92	10	1128.16	31	1128.12	13
14	1128.42	66	1128.62	16	1129.00	30	1128.20	36	1128.12	27	1127.62	2	1127.73	2	1127.79	3	1127.85	6	1128.00	16	1128.08	23	1128.04	12
15	1128.29	47	1128.58	14	1129.16	60	1127.96	13	1128.02	18	1127.64	2	1127.73	2	1127.87	7	1127.92	10	1128.00	16	1128 37	58	1128.37	17
16	1128.16	33	1128.62	12	1129.92	108	1127.96	13	1128.08	23	1127.64	2	1127.75	2	1127.92	10	1127.92	10	1128.12	27	1128.96	208	1128.66	22
17	1128.25	42	1128.62	8	1131.25	348	1128.33	53	1128.00	16	1127.64	2	1127.77	2	1127.77	3	1127.75	2	1128.20	36	1128.87	180	1128.25	16
18	1128.25	42	1128.50	7	1131.20	505	1128.37	58	1127.96	13	1127.60	2	1127.71	2	1127.79	3	1127.75	2	1128.12	27	1128.66	120	1128.62	21
19	1128.42	66	1128.29	5	1130.46	445	1128.37	58	1127.89	8	1127.64	2	1127.75	2	1127.98	14	1127.73	2	1128.04	19	1228.54	89	1128.58	20
20	1128.62	108	1128.25	5	1130.20	328	1128.46	73	1127.85	6	1127.68	2	1127.72	2	1128.04	19	1127.75	2	1128.00	16	1128.44	70	1128.37	17
21	1128.46	73	1128.16	4	1129.79	268	1128.29	47	1127.87	7	1127.64	2	1127.68	2	1128.25	42	1127.73	2	1127.94	11	1128.33	53	1128.54	20
22	1128.66	120	1128.20	4	1129.66	189	1128.25	42	1127.83	6	1127.68	2	1127.70	2	1128.04	19	1127.83	5	1127.92	10	1128.37	58	1128.52	19
23	1128.66	120	1128.16	4	1129.54	84	1128.29	47	1127 89	8	1127.62	2	1127.68	2	1127.92	10	1127.98	14	1127.92	10	1128.46	74	1128.68	22
24	1128.66	120	1128.08	4	1129.29	81	1128.37	58	1127.87	7	1127.71	2	1127.75	2	1127.88	8	1127.92	10	1127.89	8	1128.42	66	1128.50	19
25	1128.67	121	1128.12	4	1129.31	330	1128.37	58	1127.89	8	1127.77	2	1127.73	2	1127.85	6	1127.85	6	1127.83	5	1128 39	61	6128.48	19
26	1128.67	121	1128.25	4	1130.25	725	1128.37	58	1127.89	8	1127.68	2	1127.68	2	1127.94	11	1127.81	4	1127.83	5	1128.37	58	1128.50	19
27	1128.58	98	1128.29	4	1131.87	1590	1128.25	42	1127.92	10	1127.66	2	1127.68	2	1127.94	11	1127.81	4	1127.81	4	1128.37	58	1128.62	21
28	1128.62	108	1128.58	6	1131.21	1200	1128.20	36	1127.85	6	1127.66	2	1127.75	2	1127.90	8	1127.75	2	1127.83	5	1128.37	58	1128.75	23
29	1128.79	120	.....	....	1129.75	505	1128.42	66	1127.81	5	1127.66	2	1127.70	2	1127.90	8	1127.73	2	1128.00	16	1128.37	58	1128.77	24
30	1129.58	132	.....	....	1130.12	665	1128.52	85	1127.83	6	1127.66	2	1127.68	2	1127.94	11	1127.71	2	1128.14	29	1128.42	66	1128.75	23
31	1129.25	141	.....	....	1129.89	565	.....	....	1127.77	5	.....	....	1127.66	2	1127.87	7	.....	.....	1128.12	27	.....	....	1128.75	23

Monthly Discharge of Speed River at Caraher's Bridge near Guelph for 1913

Drainage Area, 80.5 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	.....	.....	.....	.....	.....	.....	.....
February	.....	.....	.....	.....	.....	.....	.....
March	.....	.....	.....	.....	.....	.....	.....
April	.....	.....	.....	.....	.....	.....	.....
May	.....	.....	.....	.....	.....	.....	.....
June	.....	.....	.....	.....	.....	.....	.....
July	.....	.....	.....	.....	.....	.....	.....
August	.....	.....	.....	.....	.....	.....	.....
September	.....	.....	.....	.....	.....	.....	.....
October	.....	.....	.....	.....	.....	.....	.....
November	180	2	51.7	2.24	.02	.64	.71
December	53	5	24.4	.66	.06	.30	.35
The period	180	2	37.6	2.24	.02	.47	1.06

Monthly Discharge of Speed River at Caraher's Bridge near Guelph for 1914

Drainage Area, 80.5 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	141	16	70	1.75	.20	.87	1.00
February	109	4	25	1.35	.05	.31	.32
March	1590	9	26	19.75	.11	3.28	3.48
April	685	13	92	8.51	.16	1.14	1.27
May	53	5	19	.66	.06	.25	.29
June	4	2	2	.05	.02	.03	.03
July	10	2	2	.12	.02	.03	.03
August	42	2	7	.52	.02	.09	.10
September	194	2	23	2.41	.02	.30	.33
October	36	2	10	.45	.02	.13	.15
November	208	10	54	2.58	.12	.67	.74
December	84	10	27	1.04	.12	.34	.39
The year	1590	2	50	19.75	.02	.62	8.13

Speed River at Hespeler

Location —At a point 100 ft. below the gaol, which adjoins the power house, in the Town of Hespeler.

Records Available —July 10th, 1913, to Dec. 31st, 1914. (Daily gauge heights from Oct. 23rd, 1913, to Dec. 31st, 1914).

Drainage Area —259 sq. miles.

Gauge —Vertical staff, 0 ft.—12 ft. on gaol wall adjoining power house. The elevation of zero on gauge is 935.00, which has remained unchanged since established.

Channel —Loose gravel; shifting.

Discharge Measurements —Made from the permanent wading section, and the dam above will be used as a weir for flood discharge.

Winter Flow —This section is largely free from ice. The relation between gauge height and discharge is little affected.

Accuracy —Daily discharges were computed from a well-defined curve up to July 1st, 1914. Subsequent measurements showed a change in the section affecting flows up to 250 sec.-ft. For flows above this amount there was no appreciable change.

Observer —W. D. Scott.

Discharge Measurements of Speed River at Hespeler in 1913-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1913							
July 10....	Roberts, E	95	73	1.45	936.10	107	.....
Aug. 20....	"	80	50	1.12	935.86	56	.....
Sept. 18....	"	84	57	1.37	936.01	78	.....
Oct. 25....	"	85	83	1.85	936.41	152	.....
Nov. 13....	"	85	87	1.89	936.49	164	.....
Dec. 16....	"	85	64	1.61	936.26	102	.....
1914							
Jan. 28....	"	90	81	2.23	936.50	180	.....
Feb. 21....	"	85	66	1.22	936.00	80	.....
Mar. 23....	"	89	112	3.09	936.83	346	.....
April 6....	"	90	132	2.65	937.08	349	.....
" 23....	"	87	119	2.50	936.92	299	.....
June 9....	"	85	68	1.94	936.31	133	.....
" 9....	"	85	63	1.83	936.29	115	.....
July 2....	"	75	46	1.01	936.08	46	.....
" 2....	"	75	46	1.06	936.08	48	.....
" 2....	"	75	49	.95	936.08	47	.....
" 7....	"	90	70	1.17	936.25	81	.....
" 7....	"	90	70	1.24	936.26	87	.....
Aug. 7....	"	91	74	1.32	936.31	98	.....
" 25....	"	92	82	1.26	936.34	102	.....
" 25....	"	92	81	1.28	936.33	103	.....
" 26....	"	82	69	1.17	936.24	80	.....
Sept. 7....	"	92	88	1.23	936.39	107	.....
" 7....	"	92	89	1.20	936.40	107	.....
" 18....	"	74	34	.91	935.97	30	.....
" 18....	"	91	72	1.31	936.33	93	.....
" 18....	"	91	71	1.22	936.32	86	.....
Oct. 7....	"	91	71	1.07	936.26	75	.....
" 7....	"	91	71	1.10	936.26	78	.....
" 20....	"	92	80	1.19	936.26	95	.....
" 20....	"	92	81	1.19	936.26	96	.....
" 20....	"	92	79	1.21	936.26	96	.....
" 20....	"	92	80	1.21	936.26	97	.....
Nov. 17....	"	99	136	1.83	936.81	249	.....
" 17....	"	99	134	1.88	936.81	252	.....
Dec. 3....	"	98	129	1.86	936.75	240	.....

Daily Gauge Height and Discharge of Speed River at Hespeler for 1913

Drainage Area, 259 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.
1																					936.21	113	936.37	106
2																					936.21	113	936.42	157
3																					936.21	113	936.33	135
4																					936.21	113	936.29	129
5																					936.25	120	936.25	120
6																					936.16	105	936.37	145
7																					936.14	100	936.37	145
8																					936.21	113	936.29	129
9																					936.37	145	936.23	117
10																					936.79	250	936.29	129
11																					936.70	225	936.29	129
12																					936.50	175	936.21	113
13																					936.43	158	936.21	113
14																					936.54	183	936.17	105
15																					936.54	183	936.25	120
16																					936.29	128	936.25	120
17																					936.33	135	936.21	113
18																					936.25	120	936.23	117
19																					936.56	188	936.21	113
20																					937.06	342	936.37	145
21																					937.18	392	936.10	93
22																					936.87	277	936.31	133
23																					937.00	323	936.27	125
24																					936.87	276	936.10	93
25																					936.42	157	936.17	105
26																					936.58	194	936.19	110
27																					936.59	196	936.21	113
28																					936.50	175	936.17	105
29																					936.42	157	936.23	118
30																					936.46	164	936.21	113
31																							936.19	110

Daily Gauge Height and Discharge of Speed River at Hespeler for 1914

Drainage Area, 259 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	936.08	90	937.08	350	936.23	118	938.20	873	936.93	297	936.23	117	936.14	58	936.04	44	936.27	84	936.10	53	935.84	23	936.48	136
2	936.10	93	936.92	295	936.54	185	938.33	935	936.81	255	936.20	113	936.14	58	935.94	32	936.39	112	936.06	46	936.06	46	936.46	129
3	938.08	90	936.83	265	936.44	160	938.25	895	936.75	238	936.27	125	936.14	58	935.98	36	936.66	195	936.04	44	436.09	52	936.60	175
4	936.08	90	936.83	265	936.35	140	937.79	665	936.75	238	936.31	133	935.98	36	936.16	62	936.46	177	935.81	18	936.07	48	936.62	180
5	936.25	120	936.79	250	936.33	135	937.42	495	936.66	215	936.27	125	936.04	44	935.16	62	936.46	177	936.08	50	936.08	50	936.56	195
6	936.29	128	936.71	228	936.35	140	937.16	380	936.68	220	936.14	100	936.12	54	936.08	50	936.37	105	936.09	52	836.08	50	936.23	75
7	936.27	125	936.68	220	936.33	135	937.04	335	936.66	215	936.18	108	936.16	62	936.04	44	936.37	105	936.08	50	936.06	46	936.04	44
8	936.31	133	936.64	210	936.25	120	937.00	320	936.60	198	936.31	133	936.16	62	935.92	29	936.37	105	936.10	53	935.82	19	936.31	92
9	936.33	135	936.58	195	936.27	125	936.75	238	936.50	173	936.37	145	936.18	66	935.85	23	936.35	101	936.07	48	936.06	46	936.25	78
10	936.25	120	936.56	188	936.29	128	936.73	235	936.50	173	936.33	135	936.16	62	936.16	62	936.44	125	936.04	44	936.04	44	936.12	54
11	936.08	90	936.52	180	936.25	120	936.73	235	936.44	160	936.08	90	936.14	58	936.20	70	936.37	105	935.96	33	936.03	42	936.16	62
12	936.27	125	936.50	173	936.42	155	936.68	220	936.52	178	936.16	105	935.94	32	936.25	78	936.33	97	936.10	53	936.02	41	936.18	66
13	936.33	135	936.50	173	936.25	120	936.66	215	936.56	188	936.16	105	936.14	58	936.23	75	936.08	50	936.14	58	936.03	42	936.06	46
14	936.31	133	936.42	155	936.31	133	936.68	220	936.52	178	936.14	100	936.23	75	936.04	44	936.31	92	936.16	62	986.01	39	936.16	62
15	936.31	133	936.42	155	937.10	358	936.71	228	936.42	155	936.23	116	936.16	62	935.85	21	936.27	84	936.16	62	935.92	29	936.29	89
16	936.33	135	936.50	173	937.14	375	936.71	228	936.27	125	936.16	105	936.16	62	935.65	12	936.25	78	936.12	54	936.85	23	936.04	44
17	936.29	128	936.50	173	937.64	595	936.71	228	936.25	120	936.14	100	936.16	62	936.25	78	936.14	58	936.13	56	936.58	167	936.04	44
18	936.20	110	936.54	185	938.23	885	936.71	228	936.29	128	936.08	90	935.98	36	936.27	84	936.10	53	936.08	50	936.52	146	936.06	46
19	936.25	120	936.58	195	937.58	570	936.68	220	936.25	120	936.08	90	936.00	38	936.33	97	936.10	53	936.16	62	936.39	112	936.06	46
20	936.33	135	936.58	195	937.27	425	937.02	328	936.31	133	935.92	65	936.14	58	936.27	84	935.87	25	936.12	54	936.18	66	935.87	24
21	936.27	125	936.56	188	937.16	380	937.04	336	936.29	128	935.98	75	931.16	62	936.29	89	936.08	50	936.04	44	936.20	70	936.02	41
22	936.27	125	936.56	188	937.16	380	937.06	343	936.37	145	935.96	70	936.08	50	936.33	97	936.08	50	936.06	46	936.10	53	936.04	44
23	936.33	135	936.58	195	936.79	250	936.92	295	936.33	135	936.02	80	936.16	62	936.23	75	936.10	53	936.08	50	936.16	62	936.02	41
24	936.29	128	936.58	195	936.71	228	936.87	275	936.27	125	936.02	80	936.20	70	936.27	84	936.12	54	936.06	46	936.12	54	936.06	46
25	936.20	110	936.62	203	936.75	238	936.81	255	936.20	113	936.14	100	936.08	50	936.27	84	936.10	53	935.85	23	936.27	84	935.66	13
26	936.33	135	936.66	215	937.08	350	936.75	238	936.29	128	936.06	85	935.89	27	936.29	89	936.06	46	936.07	48	936.27	84	935.62	10
27	936.44	160	936.33	138	938.08	810	936.87	275	936.31	133	936.08	90	936.14	58	936.23	75	935.98	36	936.06	46	936.44	125	935.62	10
28	936.58	193	936.35	140	939.31	1415	936.89	285	936.35	140	936.04	85	936.14	58	936.15	60	936.08	50	936.06	46	936.31	92	936.02	41
29	936.46	164	.....	.....	939.04	1290	936.89	285	936.33	135	936.20	110	936.12	54	936.15	60	936.08	50	936.07	48	936.31	92	936.10	49
30	937.25	418	.....	.....	938.42	980	936.83	265	936.27	125	936.18	105	936.12	54	936.20	70	936.14	58	936.05	46	936 33	97	936.23	73
31	937.25	418	.....	.....	938.68	1119	.....	.....	936.27	125	.....	.....	936.16	62	936.25	78	.....	.....	935.85	23	.....	.....	936.25	74

Monthly Discharge of Speed River at Hespeler for 1913

Drainage Area, 259 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Miles			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	.....	.....	.....	.....	.....	.....	.....
February	.....	.....	.....	.....	.....	.....	.....
March	.....	.....	.....	.....	.....	.....	.....
April	.....	.....	.....	.....	.....	.....	.....
May	.....	.....	.....	.....	.....	.....	.....
June	.....	.....	.....	.....	.....	.....	.....
July	.....	.....	.....	.....	.....	.....	.....
August	.....	.....	.....	.....	.....	.....	.....
September	.....	.....	.....	.....	.....	.....	.....
October	.....	.....	.....	.....	.....	.....	.....
November	392	100	181	1.51	.39	.70	.78
December	157	93	120	.61	.36	.46	.53
The period..	392	93	150	1.51	.36	.58	1.31

Monthly Discharge of Speed River at Hespeler for 1914

Drainage Area, 259 Square Miles

Month.	Discharge in Second-feet.			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	418	90	144	1.61	.35	.56	.64
February	350	138	203	1.35	.53	.78	.81
March	1,415	118	406	5.46	.46	1.57	1.81
April	935	215	352	3.61	.83	1.36	1.52
May	297	113	166	1.15	.44	.64	.74
June	145	65	103	.56	.25	.40	.45
July	75	27	55	.29	.10	.21	.24
August	97	12	62	.38	.05	.24	.28
September	195	25	82	.75	.10	.32	.36
October	62	18	47	.24	.07	.18	.21
November	167	19	64	.64	.07	.25	.28
December	195	10	68	.75	.04	.27	.31
The Year	1,415	10	146	5.46	.04	.56	7.65

Galt Creek at Galt

Location—At the Kerr Street bridge in the Town of Galt, County of Waterloo.

Records Available—July 9th, 1913, to Dec. 31st, 1914.

Drainage Area—48 square miles.

Gauge—Vertical staff, 0 ft—9 ft. on the right abutment. Elev. of zero on gauge is 891.00, which has remained unchanged since established.

Channel—In the early part of the summer of 1914 this channel was narrowed on the left bank, making a new discharge curve necessary.

Discharge Measurements—Made from the upstream side of the bridge at all stages.

Control—The dam located above this section has little effect on the river stage, and the flow can be called natural.

Winter Flow—During the months of December to the middle of March, ice greatly affects the relation between gauge height and discharge. Winter measurements are made to determine this flow.

Accuracy—The records on this stream can be classed as good.

Observer—Charles Parker.

Discharge Measurements of Galt Creek near Galt in 1913-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1913							
July 9....	Rober , E.	24	17	1.39	893.31	23	.....
Aug. 20....	"	24	15	1.27	893.22	19	.....
Sept. 15....	"	24	13	1.31	893.19	17	.....
Oct. 24....	"	24	25	.98	893.66	24	.....
Nov. 24....	"	24	32	2.86	894.08	92	.....
Dec. 9....	"	24	23	.94	893.51	22	.....
1914							
Jan. 27(a).	"	20	13	1.67	844.50	22	.....
Feb. 24(a).	"	16	11	1.58	893.58	17	.....
April 4....	"	24	35	3.41	894.23	119	.....
" 4....	"	24	28	3.67	894.20	103	.....
" 24....	"	18	20	1.84	893.50	36	.....
June 1....	"	14	11	1.00	893.33	11	.....
July 6....	"	24	13	.75	893.18	9	.....
" 6....	"	24	13	.69	893.16	9	.....
" 24....	"	24	12	.72	893.19	8	.....
" 24....	"	24	12	.80	893.19	9	.....
" 25....	"	24	12	.74	893.19	8	.....
Aug. 7....	"	24	13	.74	893.25	9	.....
" 25....	"	24	15	.70	893.31	10	.....
" 25....	"	24	15	.70	893.31	10	.....
Sept. 9....	"	24	18	.88	893.42	16	.....
" 9....	"	24	19	.93	893.43	17	.....
" 9....	"	24	18	.88	893.42	16	.....
" 18....	"	24	17	.83	893.40	14	.....
" 18....	"	24	17	.83	893.40	14	.....
Oct. 17....	"	24	15	.94	893.40	14	.....
" 17....	"	24	15	.91	893.40	14	.....
" 26....	"	24	15	.84	893.35	13	.....
" 26....	"	24	15	.83	893.35	12	.....
Nov. 17....	"	24	28	1.76	893.89	50	.....
" 17....	"	24	28	1.82	893.90	52	.....
Dec. 3....	"	24	26	1.84	893.79	47	.....
" 3....	"	24	25	1.60	893.77	40	.....

(a) Ice conditions

Daily Gauge Height and Discharge of Galt Creek at Galt for 1913

Drainage Area 48 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.20	15	893.33	25	893.33	25	893.35	25	893.49	32
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.23	17	893.25	20	893.44	36	893.35	25	893.54	35
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.23	17	893.29	23	893.48	39	893.38	26	893.57	37
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.31	25	893.29	23	893.33	25	893.45	30	893.50	33
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.21	16	893.33	25	893.40	32	893.44	30	893.37	26
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.23	17	893.27	23	893.54	44	893.37	26	893.38	26
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.43	33	893.23	17	893.31	25	893.34	24	893.45	30
8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.23	17	893.27	23	893.35	27	893.49	32	893.46	31
9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.31	25	893.31	25	893.25	20	893.35	27	893.85	61	893.56	37
10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.56	45	893.31	25	893.44	36	893.83	59	893.50	33
11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.63	52	893.29	23	893.40	32	894.04	85	893.56	37
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.42	33	893.23	17	893.46	36	893.79	55	893.66	44
13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.50	40	893.27	23	893.46	36	893.69	46	893.42	28
14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.29	23	893.27	27	893.37	28	893.69	46	893.59	39
15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.31	25	893.19	15	893.50	40	893.67	45	893.71	48
16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.32	25	893.23	17	893.42	33	893.60	39	893.50	33
17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.31	25	893.44	36	893.48	39	893.65	43	893.44	30
18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.27	22	893.39	31	893.48	39	893.48	32	893.44	30
19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.23	17	893.35	27	893.49	39	893.77	53	893.62	41
20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.22	17	893.50	40	893.50	40	804.08	81	893.52	34
21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.29	23	893.46	36	893.54	44	893.50	40	894.04	81	893.42	28
22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.31	25	893.31	25	893.50	40	893.56	46	894.04	81	893.49	32
23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.29	23	893.33	25	893.30	32	893.50	40	893.89	66	893.50	33
24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.28	23	893.40	32	893.46	36	893.56	46	893.81	57	893.59	39
25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.29	23	893.31	25	893.36	27	893.72	59	893.64	42	893.46	31
26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.28	23	893.31	25	893.35	27	893.60	49	893.58	38	893.85	61
27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.27	22	893.27	23	893.37	28	893.56	46	893.55	36	894.23	19
28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.25	20	893.52	41	893.40	32	893.31	25	893.56	37	894.00	80
29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.23	17	893.31	25	893.44	36	893.50	40	893.51	34	893.92	70
30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.21	16	893.33	25	893.35	27	893.47	39	893.51	34	893.68	45
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	893.21	16	893.31	25	.....	.....	893.40	32	.....	.....	893.77	53

Daily Gauge Height and Discharge of Galt Creek at Galt for 1914

Drainage Area, 48 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	893.49	32	894.71	30	893.64	18	894.16	103	893.54	35	893.33	12	893.25	10	893.19	8	893.54	24	893.33	10	893.49	20	893.64	32
2	893.64	42	894.52	25	893.77	19	894.14	100	893.56	37	893.30	11	893.25	10	893.37	14	893.94	58	893.31	11	893.48	19	893.74	40
3	893.64	42	894.50	22	893.31	16	894.20	109	893.48	32	893.33	12	893.25	10	893.33	12	893.76	41	893.32	11	893.48	19	893.74	40
4	893.68	46	894.31	18	893.45	15	894.14	100	893.50	33	893.37	14	893.24	9	893.34	12	893.39	24	893.28	10	893.46	18	893.71	37
5	893.85	61	894.23	17	893.50	15	893.95	73	893.54	35	893.37	14	893.21	9	893.32	11	893.50	21	893.26	10	893.37	14	893.61	30
6	893.89	66	894.37	22	893.52	18	893.81	57	893.73	50	893.37	14	893.20	9	893.28	10	893.47	20	893.29	11	893.38	14	893.48	19
7	893.66	44	894.16	18	893.58	20	893.66	44	893.89	66	893.42	16	893.16	8	893.26	10	893.46	18	893.25	10	893.34	12	893.37	14
8	893.71	48	894.25	16	893.64	20	893.62	41	893.79	55	893.68	35	893.18	8	893.25	10	893.48	20	893.33	12	893.33	12	893.66	33
9	893.64	42	894.18	20	893.68	18	893.64	42	893.71	48	893.64	32	893.30	11	893.25	10	893.42	16	893.30	11	893.37	14	893.74	44
10	893.62	41	894.00	18	893.42	17	893.58	38	893.62	41	893.50	21	893.27	10	893.29	11	893.35	13	893.43	17	893.39	15	893.81	46
11	893.58	38	893.81	16	893.45	18	893.52	34	893.56	37	893.41	15	893.27	10	893.26	10	893.34	13	893.53	24	893.36	13	893.68	34
12	893.79	55	893.66	13	893.52	25	893.46	31	893.54	35	893.34	12	893.25	10	893.32	11	893.31	11	893.59	28	893.33	12	893.68	34
13	893.64	42	893.58	13	893.42	29	893.42	28	893.58	38	893.29	11	893.27	10	893.32	11	893.25	10	893.46	18	893.48	19	893.75	38
14	893.48	32	893.56	12	893.89	66	893.42	28	893.60	39	893.25	10	893.25	10	893 31	11	893.29	11	893.44	17	893.51	22	893.92	50
15	893.44	30	893.46	11	894.73	200	893.44	29	893.52	34	893.26	10	893.30	10	893.26	10	893.20	9	893.41	16	893.66	33	894.37	120
16	893.48	32	893.37	10	895.12	268	893.39	27	893.50	33	893.20	9	893.27	10	893.25	10	893.26	10	893.41	16	893.83	47	894.25	95
17	893.64	42	893.42	9	894.81	180	893.33	23	893.46	31	893.20	9	893.25	10	893.23	9	893.29	11	893.37	14	893.82	47	893.59	80
18	894.14	48	893.44	9	895.33	305	893.42	28	893.44	30	893.25	10	893.21	9	893.31	11	893.28	10	893.45	18	893.66	33	893.48	68
19	894.35	58	893.37	9	894.64	186	893.46	31	893.37	26	893.26	10	893.18	8	893.37	14	893.43	17	893.44	17	893.64	32	893.44	62
20	893.87	35	893.42	10	894.45	153	893.58	38	893.35	25	893.25	10	893.19	9	893.44	17	893.29	11	893.38	14	894.16	82	893.40	51
21	894.04	40	893.39	10	894.29	125	893.64	42	893.33	24	893.27	10	893.17	8	893.65	33	893.25	10	893.35	13	893.83	47	893.46	48
22	893.44	30	893.44	12	893.92	70	893.50	33	893.35	25	893.29	11	893.16	8	893.58	27	893.25	10	893.33	12	893.48	19	893.46	42
23	893.89	35	893.58	14	893.85	62	893.48	32	893.35	25	893.44	17	893.17	8	893.44	17	893.28	10	893.35	13	893.75	41	893.56	35
24	894.27	18	893.62	18	893.72	49	893.46	31	893.35	26	893.33	12	893.17	8	893.34	12	893.28	10	893.32	11	893.89	53	893.58	28
25	894.64	27	893.54	16	893.79	55	893.48	32	893.37	26	893.26	10	893.26	10	893.28	11	893.31	11	893.32	11	893.42	12	893.42	22
26	894.60	24	893.44	14	894.02	82	893.75	51	893.39	27	893.25	10	893.24	9	893.28	11	893.31	11	893.34	12	893.44	17	893.48	16
27	894.48	22	893.39	13	894.52	165	893.73	50	893.42	28	893.21	9	893.20	9	893.25	10	893.35	13	893.33	12	893.51	22	893.54	20
28	894.58	24	893.48	14	894.45	153	893.54	35	893.46	31	893.27	9	893.18	8	893.28	11	893.26	10	893.33	12	893.54	24	893.53	19
29	894.77	30	.....	.....	894.35	135	893.64	42	893.42	28	893.28	10	893.20	9	893.31	11	893.33	12	893.34	12	893.44	17	893.58	20
30	894.89	35	.....	.....	894.29	125	893.58	38	893.37	26	893.25	10	893.19	8	893.27	10	893.26	10	893.42	12	893.51	22	893.56	20
31	894.66	33	.....	.....	894.18	106	.....	.....	893.35	25	.....	.....	893.17	8	893.34	12	.....	.....	893.48	19	.....	.....	893.60	20

Monthly Discharge of Galt Creek at Galt for 1913

Drainage Area 48 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	.....	.....	.....	.....	.....	.....	.....
February	.....	.....	.....	.....	.....	.....	.....
March	.....	.....	.....	.....	.....	.....	.....
April	.....	.....	.....	.....	.....	.....	.....
May	.....	.....	.....	.....	.....	.....	.....
June	.....	.....	.....	.....	.....	.....	.....
July	.....	.....	.....	.....	.....	.....	.....
August	52	15	26	1.08	.31	.54	.62
September	44	15	27	.92	.31	.56	.62
October	59	25	37	1.23	.52	.77	.89
November	85	24	46	1.77	.50	.95	1.05
December	80	26	38	1.66	.54	.79	.91
The period	85	15	35	1.77	.31	.72	4.09

Monthly Discharge of Galt Creek at Kerr St. Bridge, Galt for 1914

Drainage Area 48 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	66	18	38	1.37	.375	.805	.93
February	30	9	15	.62	.19	.32	.32
March	305	15	88	6.35	.31	1.834	2.11
April	109	23	46	2.27	.48	.967	1.08
May	66	24	33	1.37	.50	.706	.82
June	35	9	13	.73	.19	.275	.31
July	11	8	9	.23	.17	.19	.22
August	33	8	12	.69	.17	.26	.30
September	58	9	15	1.21	.14	.33	.37
October	28	10	14	.58	.21	.29	.33
November	82	12	25	1.71	.25	.54	.60
December	120	14	40	2.50	.29	.84	.97
The year	305	8	29	6.35	.17	.61	8.36

Nith River near Canning

Location —At the bridge 200 feet upstream from the Grand Trunk Ry. bridge, lot 2, Concession 2, Township of Blenheim, County of Oxford, 1 mile from the Village of Canning.

Records Available —July 5th, 1913, to Dec. 31st, 1914.

Drainage Area —386 square miles.

Gauge —Vertical staff, 0 ft.—12 ft. on left abutment. Elev. of zero on gauge is 799.00, which has remained unchanged since established.

Channel —Slightly shifting bed; both banks practically permanent.

Discharge Measurements —Made from the upstream side of bridge, and at low-water period a permanent cross-section located 150 feet upstream is used.

Winter Flow —The relation between gauge height and discharge is affected by ice from the middle of December to the middle of March. Measurements are made to determine this flow.

Control —About 1½ miles above this section is a milling plant, the operation of which causes variations in the river stage.

Accuracy —Data at present available are insufficient to determine curve definitely for flows over 200 sec.-ft.

Observer —Lewis Baker.

Discharge Measurements of Nith River near Canning in 1913-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1913							
July 2....	Roberts, E	105	116	1.38	801.17	161	.....
Aug. 15....	"	105	128	1.47	801.29	188	.....
Sept. 9....	"	105	143	1.35	801.34	193	.....
Oct. 21....	"	75	90	2.05	801.25	184	.....
Nov. 7....	"	70	8	1.68	801.08	139	.....
Dec. 8....	"	110	161	1.48	801.54	240	.....
1914							
Jan. 23 (a)	"	90	89	1.81	801.95	163	.....
Feb. 24 (a)	"	105	158	1.17	803.08	185	.....
Mar. 30....	"	120	452	3.30	804.00	1493	.....
April 3....	"	110	514	4.46	804.67	2292	.....
May 1....	"	73	145	2.61	801.75	378	.....
" 29....	"	90	77	1.71	801.18	132	.....
July 3....	"	90	60	1.46	800.85	88	.....
" 3....	"	90	52	1.42	800.77	74	.....
" 16....	"	92	64	1.73	800.99	112	.....
" 18....	"	90	76	1.89	801.17	143	.....
" 18....	"	90	65	1.56	800.96	101	.....
Aug. 6....	"	90	67	1.54	801.00	103	.....
" 6....	"	90	65	1.53	801.00	100	.....
" 18....	"	90	58	1.45	800.82	84	.....
" 18....	"	90	58	1.49	800.83	86	.....
Sept. 5....	"	93	91	2.08	801.33	189	.....
" 5....	"	93	94	2.05	801.34	193	.....
" 5....	"	93	92	1.99	801.31	183	.....
" 22....	"	92	73	1.73	801.03	126	.....
" 22....	"	92	74	1.89	801.05	142	.....
" 22....	"	92	80	1.87	801.08	150	.....
Oct. 14....	"	91	62	1.49	800.91	93	.....
" 14....	"	91	63	1.58	800.95	100	.....
" 21....	"	93	68	1.56	800.98	106	.....
" 21....	"	93	64	1.51	800.95	97	.....
Nov. 14....	"	93	74	1.66	801.04	123	.....
" 14....	"	93	74	1.75	801.05	130	.....
" 14....	"	93	73	1.69	801.04	124	.....
Dec. 4....	"	98	151	2.92	802.20	441	.....

(a) Ice conditions

Daily Gauge Height and Discharge of Nith River, near Canning for 1913

Drainage Area, 396 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	800.88	105	800.78	88	801.11	148	801.39	212	801.58	285
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	800.86	102	800.90	110	800.99	122	801.20	170	801.58	285
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	800.76	86	801.07	139	801.07	139	801.21	172	801.48	250
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	800.67	73	801.15	155	801.20	165	801.21	172	801.62	298
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	801.17	162	800.96	122	800.11	147	800.90	110	801.25	183	801.50	257
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	801.46	225	801.05	134	801.07	139	800.63	74	801.19	168	801.29	192
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	801.26	183	801.01	125	800.84	98	801.01	126	801.15	156	801.18	165
8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	801.38	200	801.07	139	801.01	125	801.11	148	801.35	210	800.93	100
9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	801.30	190	801.07	139	801.34	193	801.03	128	801.27	188	801.48	250
10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	801.13	148	801.76	292	801.11	137	800.88	106	801.85	385	801.60	290
11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	801.30	190	801.46	226	800.82	93	800.82	93	801.65	308	801.37	217
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	801.17	161	801.09	143	801.03	130	800.94	116	801.52	262	801.06	133
13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	801.21	170	801.38	204	800.82	93	800.84	98	801.35	210	801.54	270
14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	800.96	122	801.13	148	800.92	113	801.09	142	801.58	285	801.44	238
15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	801.13	148	801.29	188	800.69	75	801.03	128	801.52	262	801.39	212
16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	801.05	134	801.30	190	801.05	134	800.89	108	801.58	285	801.44	238
17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	801.07	139	801.19	160	801.09	142	801.21	168	801.66	310	801.39	212
18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	801.07	139	801.13	148	800.86	102	801.10	145	801.48	250	801.42	230
19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	801.11	147	801.05	134	800.99	122	800.98	123	801.58	285	801.31	200
20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	800.30	40	800.90	110	800.72	79	801.00	124	803.73	1480	801.39	212
21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	800 60	70	800.94	118	800.92	113	801.25	185	804.13	1780	801.48	250
22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	800.96	122	800.92	114	801.01	125	801.23	170	802.31	600	801.21	172
23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	801.05	134	801.11	148	801.28	185	801.27	188	802.67	790	801.02	122
24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	800.96	122	801.09	143	801.05	134	801.37	208	804.63	2150	801.83	380
25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	801.01	130	800.78	88	800.97	126	801.39	210	802.70	812	801.50	257
26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	800.88	105	600.82	93	801.05	134	801.29	188	802.37	630	801.37	217
27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	800.92	113	801.01	125	801.13	148	801.35	204	801.59	287	801.42	230
28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	801.09	143	801.19	162	800.92	113	801.25	180	801.87	390	801.48	250
29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	800.94	116	800.99	122	800.80	90	801.33	198	801.77	352	802.25	568
30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	800.88	105	801.07	139	801.09	142	801.31	192	801.60	290	802.29	587
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	800.94	116	800.97	120	.....	.....	801.35	204	.....	.....	802.33	610

Daily Gauge Height and Discharge of Nith River near Canning for 1914

Drainage Area, 386 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	802.46	680	803.96	755	801.62	120	803.75	1485	801.73	338	800.62	40	800.96	112	800.83	84	801.14	142	801.04	122	801.10	134	802.12	505
2	802.04	470	803.04	580	801.56	100	804.04	1710	801.73	338	800.81	80	800.85	86	800.62	56	802.00	450	801.02	116	801.10	134	802.73	825
3	801.71	330	802.64	505	801.60	100	804.58	2130	801.66	310	801.16	160	800.87	90	800.52	46	801.66	310	800.81	80	801.23	164	802.35	619
4	801.42	230	802.52	485	801.75	100	803.27	1165	802.83	890	801.18	165	800.83	84	800.66	60	801.29	192	800.64	58	201.12	138	802.10	496
5	801.66	310	802.37	495	801.94	105	802.66	785	802.46	680	800.83	82	801.08	128	800.71	68	801.39	212	800.96	104	801.14	142	801.83	376
6	801.71	330	802.52	540	802.12	120	802.27	575	802.08	485	801.23	180	800.96	104	800.65	60	800.92	98	801.16	160	801.06	124	801.64	306
7	801.64	304	802.56	500	802.18	145	802.16	520	801.87	390	801.27	190	800.92	98	800.71	68	800.77	75	801.02	116	801.02	116	801.71	330
8	801.37	217	802.44	470	802.10	170	802.20	544	801.62	298	802.42	655	800.96	104	800.69	64	800.42	36	800.94	101	800.85	86	801.77	348
9	801.48	250	802.62	450	802.37	195	802.04	470	801.48	250	801.42	230	800.98	108	800.60	54	800.27	22	800.56	50	800.92	98	801.79	360
10	801.62	298	803.50	405	802.31	200	801.54	270	801.39	212	801.31	200	800.79	78	800.52	46	800.55	50	801.12	138	801.02	116	802.20	428
11	801.83	380	803.52	365	802.31	185	801.83	380	801.42	230	801.29	192	800.62	56	800.81	80	800.29	23	801.08	128	800.98	108	801.92	308
12	802.04	470	803.67	325	802.42	170	801.71	330	801.54	270	801.29	192	800.50	44	800.62	56	800.20	16	801.06	124	801.04	122	801.60	198
13	802.21	550	803.42	290	802.16	155	801.71	330	801.48	250	801.04	130	800.79	78	800.79	78	800.31	26	801.16	160	801.02	116	801.68	222
14	802.37	630	803.46	255	802.48	685	801.64	306	801.52	262	800.98	108	800.79	78	800.79	78	800.27	22	801.37	202	801.20	156	801.64	210
15	802.04	470	803.20	225	803.29	1185	801.69	322	801.31	200	801.06	124	801.08	128	800.62	56	800.25	20	800.92	98	801.31	200	801.62	202
16	801.87	395	803.06	175	804.98	2470	801.64	306	801.39	212	800.94	100	801.02	116	800.75	72	800.29	23	801.02	116	801.52	262	801.68	198
17	802.10	495	802.86	175	805.29	2740	801.71	330	801.29	192	801.02	116	801.04	120	800.56	50	800.39	32	801.29	192	801.96	430	801.73	212
18	802.00	450	803.04	195	804.25	1860	801.64	306	801.35	210	800.92	98	800.81	80	800.83	84	800.42	36	800.94	101	801.85	384	801.79	212
19	801.96	430	803.25	215	804.62	2150	801.16	160	801.29	192	801.25	168	801.00	112	801.00	112	800.94	102	801.02	116	801.81	362	801.68	178
20	802.12	150	803.20	240	803.00	990	801.46	242	801.31	200	800.96	104	800.87	90	801.12	138	801.02	116	801.02	116	801.79	360	801.77	160
21	802.04	120	803.33	240	802.58	745	801.54	270	801.46	240	800.62	56	800.92	98	801.19	159	800.52	46	800.83	84	801.68	312	801.79	138
22	802.10	150	803.12	230	802.46	677	801.87	390	801.75	345	801.00	112	800.77	74	801.03	118	801.02	116	800.92	98	801.68	312	801.73	124
23	802.08	150	803.02	210	802.18	532	801.83	376	800.85	87	801.06	124	800.69	64	801.12	138	801.12	138	801.02	116	802.14	516	801.62	103
24	802.12	150	803.04	185	802.08	485	801.62	298	801.10	134	801.08	128	800.81	80	800.92	98	801.04	120	800.85	86	801.87	390	801.71	122
25	801.92	165	802.96	185	802.04	470	801.75	345	801.18	165	801.02	116	800.85	86	800.64	58	801.10	134	800.89	92	801.81	366	801.68	115
26	802.14	190	803.12	160	802.42	660	801.96	430	801.25	183	800.89	92	800.90	94	800.75	66	801.08	128	800.96	104	801.62	288	801.81	142
27	801.95	145	803.12	150	804.00	1680	801.92	415	801.23	177	801.06	124	800.42	36	800.62	56	800.87	90	801.02	116	801.87	390	801.75	128
28	801.29	100	803.20	130	806.66	4080	801.79	360	801.23	177	800.79	78	800.92	98	800.79	78	800.46	40	800.89	90	802.04	470	801.81	130
29	802.77	170	.....	.....	805.75	3170	801.81	370	801.14	155	800.96	104	800.81	80	800.85	86	801.04	120	801.02	116	802.23	558	801.85	133
30	804.54	870	.....	.....	803.92	1620	801.73	338	801.08	138	801.08	128	800.66	60	800.81	80	801.14	142	800.98	110	802.12	505	801.85	133
31	804.71	930	.....	.....	805.50	2940	.....	.....	800.89	92	.....	.....	800.66	60	800.71	68	.....	.....	801.10	134	.....	.....	801.87	134

Monthly Discharge of Nith River near Canning for 1913

Drainage Area, 386 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	.....	.....	.....	.....	.....	.....	.....
February	.....	.....	.....	.....	.....	.....	.....
March	.....	.....	.....	.....	.....	.....	.....
April	.....	.....	.....	.....	.....	.....	.....
May	.....	.....	.....	.....	.....	.....	.....
June	.....	.....	.....	.....	.....	.....	.....
*July	225	40	145	.58	.10	.38	.44
August	292	73	140	.76	.19	.36	.42
September	193	75	124	.50	.19	.32	.36
October	210	74	150	.54	.19	.39	.45
November	2,150	156	468	5.57	.404	1.21	1.35
December	610	100	264	1.58	.259	.684	.78
The period	2,150	40	215	5.57	.10	.559	3.80

* Portion of month only.

Monthly Discharge of Nith River near Canning for 1914

Drainage Area 386 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in inches on Drainage Area
January	930	100	354	2.41	.259	.917	1.06
February	755	130	326	1.956	.337	.821	.879
March	4,080	100	1,000	10.57	.259	2.59	2.99
April	2,130	160	542	5.52	.415	1.404	1.56
May	890	87	267	2.31	.225	.692	.79
June	655	40	146	1.69	.104	.378	.43
July	128	36	88	.332	.093	.228	.26
August	154	46	78	.399	.114	.202	.23
September	450	16	102	1.165	.041	.264	.29
October	202	50	114	.523	.130	.295	.34
November	558	86	262	1.45	.22	.68	.75
December	825	103	261	2.14	.27	.68	.78
The year	4,080	16	295	10.57	.04	.76	10.36

Whiteman's Creek near Burford

Location —At the first concrete bridge above its confluence with the Grand River, lot 14, concession 3, Township of Brantford, County of Brant.

Records Available —June 30th, 1913, to Dec. 31st, 1914.

Drainage Area —153 square miles.

Gauge —Vertical staff, 0 ft.—12 ft. on the left abutment. Elev. of zero on the gauge is 690.00, which has remained unchanged since established.

Channel —Permanent under ordinary conditions.

Control—Changed about June 8th, 1914.

Discharge Measurements—From the downstream side of the bridge at all stages.

Floods—On June 8th, 1914, violent rains caused this stream to raise 6 feet, and causing change in control noted above.

Winter Flow—Ice affects the relation between gauge height and discharge. Winter readings were taken to determine this flow up to the first week in February, 1914, when the stream became choked with slush ice.

Accuracy—The mill that is located about 2 miles above, known as App's Mill, causes fluctuations in the river stage at this section.

Observer—J. Roy Davis.

Discharge Measurements of Whiteman's Creek near Burford in 1913-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1913							
June 30....	Roberts, E	64	6	1.02	690.82	37	.....
Aug. 14....	"	64	41	1.12	690.94	46	.....
Sept. 12....	"	49	30	.98	690.72	29	.....
Oct. 8....	"	54	36	1.03	690.84	37	.....
Nov. 5....	"	64	46	1.08	691.05	49	.....
Dec. 4....	"	64	59	1.43	691.30	85	.....
" 27....	"	64	40	1.16	691.00	46	.....
1914							
Jan. 11....	"	64	47	1.18	691.08	55	.....
Mar. 19....	"	64	103	2.80	691.92	290	.....
" 29....	"	64	164	4.28	692.83	701	.....
April 2....	"	64	162	4.09	692.65	662	.....
" 2....	"	64	161	4.04	692.65	651	.....
" 8....	"	64	92	2.25	691.76	203	.....
May 20....	"	64	55	1.47	691.19	81	.....
" 21....	"	64	57	1.38	691.18	78	.....
" 23....	"	64	63	1.46	691.25	92	.....
" 27....	"	64	84	2.30	691.64	193	.....
June 17....	"	64	47	1.85	691.00	86	.....
" 17....	"	64	47	2.02	691.04	94	.....
" 20....	"	63	40	1.85	690.92	74	.....
" 21....	"	63	40	1.83	690.92	73	.....
" 25....	"	50	30	1.50	690.75	46	.....
" 26....	"	50	31	1.48	690.75	46	.....
July 4....	"	50	31	1.40	690.75	44	.....
" 4....	"	50	32	1.45	690.75	46	.....
" 15....	"	63	38	1.74	690.87	66	.....
" 15....	"	63	38	1.70	690.87	64	.....
" 28....	"	55	32	1.43	690.75	45	.....
" 28....	"	55	32	1.40	690.75	45	.....
Aug. 16....	"	50	21	1.14	690.57	24	.....
" 16....	"	50	19	.95	690.52	18	.....
" 17....	"	57	33	1.51	690.78	50	.....
" 17....	"	57	33	1.45	690.77	48	.....
Sept. 4....	"	64	75	2.70	691.47	203	.....
" 4....	"	64	77	2.73	691.48	212	.....
" 6....	"	64	53	2.03	691.10	108	.....
" 12....	"	55	33	1.40	690.76	46	.....
" 19....	"	50	18	.93	690.50	16	.....
" 28....	"	55	33	1.41	690.76	47	.....
" 29....	"	55	33	1.44	690.77	48	.....
" 29....	"	55	33	1.42	690.76	47	.....
Oct. 13....	"	56	33	1.50	690.80	50	.....
" 13....	"	58	37	1.67	690.87	63	.....
" 13....	"	59	41	1.77	690.93	72	.....
Nov. 12....	"	57	33	1.47	690.80	49	.....
" 12....	"	58	36	1.53	690.83	56	.....
Dec. 8....	"	65	49	1.82	691.04	90	.....

Daily Gauge Height and Discharge of Whiteman's Creek near Burford for 1913

Drainage Area 153 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec ft.*	*Feet*	*Sec-ft.*
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	690.82	57	.....	.....	.....	.....	.....	.....	691.04	58	691.25	91
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	690.88	58	691.21	83
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	690.96	47	691.23	87
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	691.02	55	691.19	80
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	691.02	55	691.10	67
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	690.96	47	691.12	70
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	690.98	49	691.17	77
8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	690 84	37	690.94	45	691.08	64
9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	691.15	74	691.08	64
10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	691.33	107	691.17	77
11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	691.40	124	691.29	100
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	690.72	29	.....	.....	691.29	100	691.04	58
13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	691.27	95	691.06	61
14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	690.94	46	.....	.....	.....	.....	691.29	100	691.04	58
15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	690.83	36	691.37	116	691.04	58
16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	690.81	35	691.31	103	691.10	67
17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	690.85	38	691.25	91	691.04	58
18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	690.85	38	691.25	91	691.04	58
19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	690.83	36	691.31	103	691.08	64
20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	690.88	41	691.65	192	691.14	72
21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	690.96	48	691.81	243	691.04	58
22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	690.94	46	691.79	238	691.08	64
23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	690.44	46	691.67	197	690.83	33
24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	691.00	53	691.62	183	691.06	61
25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	691.08	61	691.54	160	691.00	52
26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	691.00	53	691.46	137	691.00	52
27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	690.88	41	691.42	128	690.96	47
28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	691.00	53	691.33	107	690.96	47
29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	691.04	56	691.29	100	691.12	70
30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	691.02	54	691.25	91	690.97	48
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	691.00	53	.....	.....	691.08	64

Daily Gauge Height and Discharge of Whiteman's Creek near Burford for 1914

Drainage Area, 153 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	691.00	52	692.75	192	692.75	60	692.52	538	691.71	210	691.10	67	690.85	60	690.71	37	691.04	92	690.66	31	690.71	37	691.27	140
2	691.21	83	692.37	150	692.37	56	692.56	560	691.53	160	691.02	55	690.81	52	690.60	25	691.92	330	690.71	37	690.77	46	691.44	184
3	691.06	61	692.79	177	692.79	55	692.66	617	691.46	137	690.96	45	690.77	46	690.60	25	691.64	240	690.58	23	690.71	37	691.54	210
4	690.94	45	692.79	177	692.79	52	692.46	507	691.44	133	691.16	181	690.75	43	690.66	21	691.46	187	690.60	25	690.71	37	691.37	163
5	691.42	128	692.85	150	692.85	52	692.10	350	691.58	171	691.23	100	690.75	43	690.56	21	696.18	120	690.60	25	690.73	40	691.27	138
6	691.29	115	692.73	135	692.83	52	691.96	300	692.27	417	691.19	90	690.71	37	690.46	12	691.10	104	690.71	37	690.68	34	691.14	113
7	690.95	46	692.62	123	692.71	52	691.77	230	693.04	840	691.16	81	690.66	31	690.66	31	691.00	85	690.62	27	690.73	40	691.10	104
8	690.87	37	692.54	112	692.54	52	691.75	225	692.08	345	693.37	1,050	690.71	37	690.42	10	691.02	87	690.58	23	690.71	37	691.06	95
9	691.00	38	692.35	100	692.35	52	191.60	178	691.98	305	694.47	1,935	690.71	37	690.42	10	690.94	75	690.66	31	690.75	43	690.98	98
10	690.89	39	692.24	100	692.22	52	691.54	160	691.71	210	692.37	462	690.71	37	690.68	34	690.87	63	690.77	46	690.75	43	691.00	85
11	691.08	63	691.58	97	691.58	52	691.48	144	691.54	160	691.77	278	690.66	31	690.68	34	690.79	50	690.68	34	690.89	66		
12	691.04	56	691.23	92	691.23	52	691.48	144	691.58	171	691.44	182	690.66	31	690.71	37	690.71	37	690.77	46	690.58	23	690.92	72
13	691.25	56	691.16	76	691.12	70	691.47	140	691.81	243	691.21	126	690.66	31	690.71	37	690.71	37	690.71	37	690.68	34	690.87	63
14	691.18	56	691.33	108	691.33	107	691.35	112	691.66	195	691.12	108	690.75	43	690.68	34	690.71	37	690.79	50	690.66	31	690.92	72
15	691.29	56	693.33	100	691.79	238	691.29	100	691.54	160	691.04	92	690.79	50	690.56	21	690.71	37	690.75	43	690.81	52	691.35	160
16	691.33	56	693.31	97	692.16	375	691.29	100	691.39	121	690.92	70	690.73	40	690.53	20	690.73	40	690.77	46	691.14	113	691.35	160
17	691.29	56	693.18	95	692.31	460	691.37	116	691.35	112	690.89	67	690.73	40	690.66	31	690.62	27	690.60	25	691.20	125	691.04	92
18	691.29	56	693.12	92	692.46	506	691.35	112	691.25	91	690.85	60	690.66	31	690.66	31	690.75	43	690.75	43	691.23	131	691.06	95
19	691.29	66	693.04	92	692.08	340	691.33	107	691.20	81	690.92	72	690.65	30	690.50	17	690.58	23	690.77	46	690.96	77	691.16	115
20	691.27	72	693.04	92	691.75	225	691.39	121	691.10	67	690.92	72	690.70	36	690.85	60	690.64	29	690.73	40	691.16	115	691.00	85
21	691.38	75	693.08	90	691.58	150	691.39	121	691.14	73	690.87	64	690.62	27	690.85	60	692.62	27	690.83	56	691.33	155	691.00	85
22	691.38	76	692.79	83	691.42	128	691.39	121	691.16	76	690.92	72	690.66	31	690.76	46	690.68	34	690.62	27	690.92	72	691.31	85
23	691.42	76	692.79	66	691.35	112	691.35	112	691.14	73	690.54	20	690.65	30	690.79	50	690.79	50	690.66	31	691.06	95	691.20	83
24	691.39	73	692.66	57	691.32	105	691.27	95	691.12	70	690.88	65	690.69	35	690.73	40	690.73	40	690.77	46	690.96	77	691.39	85
25	691.18	69	692.81	57	691.35	112	691.39	121	691.16	76	690.81	52	690.56	21	690.77	46	690.81	52	690.66	31	690.89	66	691.37	83
26	691.33	67	692.66	66	691.70	209	692.44	500	691.29	100	690.83	56	690.58	23	690.71	37	690.62	27	690.73	40	690.89	66	691.42	82
27	691.18	75	692.83	73	692.20	390	692.42	486	691.46	137	690.81	52	690.69	35	690.66	31	690.66	31	690.54	21	691.08	101	691.46	82
28	691.29	92	692.79	70	693.10	875	691.94	291	691.85	248	690.83	56	690.66	31	690.73	40	690.73	40	690.54	21	691.18	120	691.39	81
29	691.62	127	.....	.....	692.79	690	691.75	295	691.54	160	690.87	64	690.60	25	690.71	37	690.66	31	690.75	43	691.18	120	691.62	80
30	692.25	192	.....	.....	692.50	528	691.68	199	691.25	91	690.85	60	690.54	21	690.66	31	690.58	23	690.60	25	691.18	120	691.68	81
31	692.08	240	.....	.....	692.62	592	.....	.....	691.23	87	.....	.....	690.65	30	690.60	25	.....	.....	690.74	42	.....	.....	691.56	78

Monthly Discharge of Whiteman's Creek near Burford for 1913

Drainage Area, 153 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November	243	38	109	1.59	.25	.712	.79
December	100	47	64	.65	.31	.42	.48
The period	243	38	86	1.59	.25	.57	1.27

Monthly Discharge of Whiteman's Creek near Burford for 1914

Drainage Area, 153 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	240	37	77	1.57	.24	.50	.58
February	192	57	104	1.25	.37	.68	.71
March	875	52	221	5.72	.34	1.44	1.67
April	617	95	240	4.03	.62	1.57	1.75
May	840	67	178	5.49	.44	1.16	1.34
June	1,935	20	192	12.65	.13	1.26	1.41
July	60	21	35	.39	.14	.23	.26
August	60	10	32	.39	.07	.21	.24
September	330	23	69	2.16	.15	.46	.52
October	50	21	36	.33	.14	.24	.28
November	155	23	71	1.01	.15	.46	.52
December	210	63	103	1.37	.41	.67	.77
The year	1,935	10	113	12.65	.07	.74	10.05

Fairchild's Creek near Onondaga

Location —At the highway bridge called Howell's Bridge, lot 16, concession 3, Township of Onondaga, County of Brant.

Records Available —June 28th, 1913, to Dec. 31st, 1914.

Drainage Area —112 square miles.

Gauge —Vertical staff, 0 ft.—12 ft. on left abutment. Elev. of zero on the gauge is 621.00, which has remained unchanged since established.

Channel —Clay and silt; decidedly shifting.

Discharge Measurements —From the highway bridge at all stages.

Control—This stream is affected by back water from the Grand River during the high-water period.

Winter Flow—This gauge and cross-section was kept open all winter, the relation between gauge height and discharge not being affected by ice.

Accuracy—With the exception of the back water from the Grand River, which only lasts a day or two in the spring of the year, the results can be called good.

Observer—Gertrude Ludlow.

Discharge Measurements of Fairchild's Creek near Onondaga in 1913-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1913							
June 28....	Roberts, ...	42	23	.91	622.16	21	.....
Aug. 14....	"	42	27	.74	622.21	20	.....
Sept. 3....	"	42	21	.62	622.05	13	.....
Oct. 10....	"	45	22	.56	622.02	12	.....
Nov. 3....	"	45	25	.75	622.10	18	.....
Dec. 4....	"	46	34	1.09	622.28	38	.....
" 25....	"	40	20	.65	622.00	13	.....
1914							
Jan. 10....	"	40	22	.70	622.06	15	.....
Feb. 9....	"	50	86	1.94	623.29	167	.....
" 10....	"	50	70	1.58	622.85	111	.....
" 10....	"	50	70	1.57	622.85	110	.....
Mar. 20 (a)	"	55	106	1.71	623.67	182	.....
" 24....	"	46	45	1.78	222.44	80	.....
" 25....	"	44	41	1.55	622.33	64	.....
" 26....	"	48	69	2.08	623.00	144	.....
" 29....	"	75	325	1.89	627.42	616	.....
April 2....	"	67	214	2.98	625.80	640	.....
May 1 (b)	"	49	63	2.29	622.58	145	.....
May 20....	"	47	34	1.32	622.25	45	.....
" 21....	"	47	36	1.24	622.25	44	.....
" 22....	"	47	33	1.11	622.18	36	.....
" 27....	"	49	53	1.68	622.58	91	.....
June 19....	"	44	24	.76	622,00	19	.....
" 24....	"	45	23	.70	622.00	16	.....
" 24....	"	45	23	.68	621.98	15	.....
" 25....	"	45	22	.68	621.98	15	.....
July 5....	"	45	20	.75	621.94	15	.....
" 5....	"	45	20	.72	621.94	15	.....
" 15....	"	45	20	.62	621.92	12	.....
" 15....	"	45	20	.65	621.92	13	.....
Aug. 1....	"	45	16	.48	621.83	7	.....
" 3....	"	45	16	.48	621.83	8	.....
" 13....	"	45	17	.51	621.84	8	.....
" 13....	"	45	17	.50	621.83	8	.....
" 17....	"	45	16	.48	621.83	7	.....
" 17....	"	45	16	.48	621.83	7	.....
Sept. 4....	"	45	25	.84	622.04	22	.....
" 4....	"	45	25	.87	622.04	22	.....
" 6....	"	45	24	.79	622.02	19	.....
" 6....	"	45	24	.77	622.02	18	.....
" 10....	"	45	17	.53	621.83	9	.....
" 19....	"	45	16	.51	621.83	8	.....
" 30....	"	45	17	.46	621.83	8	.....
" 30....	"	45	17	.49	621.83	8	.....
" 30....	"	45	17	.50	621.83	8	.....
Oct. 13....	"	45	20	.60	621.92	12	.....
" 13....	"	45	20	.60	621.92	12	.....
Nov. 13....	"	45	19	.63	621.92	13	.....
" 20....	"	45	26	.82	622.04	21	.....
Dec. 7....	"	47	37	1.39	622.27	47	.....

(a) Surface measurement (b) Old meter used.

Daily Gauge Height and Discharge of Fairchild's Creek near Onondaga for 1913

Drainage Area 112 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.	Feet	Sec-ft.
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.08	16	622.02	13	622.04	15	622.04	15	622.06	20	622.25	40
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.08	16	622.04	15	622.04	15	622.04	15	622.04	17	622.25	40
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.04	15	622.04	15	622.05	15	622.06	15	622.04	17	622.21	36
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.06	15	622.04	15	622.06	15	622.04	15	622.06	20	622.23	38
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.14	21	622.06	15	622.04	15	622.00	13	622.08	22	622.21	36
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.29	36	622.06	15	622.04	15	622.00	13	622.08	22	622.16	30
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.14	20	622.04	15	622.04	15	622.04	15	622.04	17	622.16	30
8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.12	19	622.04	15	622.00	13	622.02	13	622.04	17	622.18	33
9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.08	16	622.07	16	622.00	13	622.04	15	622.12	25	622.10	24
10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.10	17	622.24	29	622.00	13	622.06	15	622.50	68	622.25	40
11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.22	28	622.54	65	622.00	13	622.04	15	622.62	82	622.12	25
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.10	17	622.31	38	622.00	13	622.04	15	622.42	59	622.12	25
13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.24	29	622.20	27	621.97	11	622.06	15	622.33	49	622.10	24
14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.20	26	622.14	20	621.97	11	622.04	15	622.39	55	622.08	22
15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.12	18	622.08	16	622.00	13	622.06	15	622.44	61	622.04	17
16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.08	16	622.04	15	622.02	14	622.04	15	622.35	51	622.06	20
17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.08	16	622.04	15	622.04	15	622.04	15	622.27	42	622.12	25
18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.10	17	622.06	15	622.08	16	622.06	15	622.25	40	622.12	25
19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.12	19	622.04	15	622.08	16	622.08	16	622.27	42	622.08	22
20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.08	16	622.04	15	622.06	15	622.08	16	622.98	126	622.06	20
21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.08	16	622.04	15	622.12	17	622.08	16	623.27	165	622.06	20
22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.12	19	622.06	15	622.20	26	622.08	16	623.35	175	622.06	20
23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.08	16	622.20	27	622.10	17	622.04	15	622.75	98	622.04	17
24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.08	16	622.22	29	622.08	16	622.10	17	622.58	76	622.06	20
25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.08	16	622.12	17	622.04	15	622.16	19	622.52	70	622.06	20
26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.04	15	622.08	16	622.04	15	622.25	32	622.42	58	622.06	20
27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.04	15	622.06	15	622.02	13	622.14	18	622.35	51	622.02	16
28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.04	15	622.04	15	622.02	13	622.08	16	622.33	49	622.04	17
29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.08	16	622.12	17	622.04	15	622.10	17	622.29	44	622.02	16
30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.04	15	622.12	17	623.04	15	622.12	17	622.25	40	622.02	16
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	622.04	15	622.08	16	.....	.....	622.12	17	.....	.....	622.04	17

Daily Gauge Height and Discharge of Fairchild's Creek near Onondaga for 1914

Drainage Area 112 Square Miles

Day	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	622.00	15	623.96	262	622.10	24	625.20	503	622.58	76	622.12	25	621.98	18	621.81	4	622.01	20	621.87	9	622.00	19	622.18	34
2	622.00	15	623.46	189	622.35	48	625.92	695	622.44	61	622.08	22	621.94	14	621.84	7	622.31	47	621.83	6	621.94	14	622.31	48
3	621.98	13	622.81	106	622.50	68	626.42	840	622.39	56	622.00	15	621.97	17	621.83	6	622.28	42	621.85	7	621.94	14	622.52	71
4	622.02	16	623.00	129	622.62	80	624.20	302	622.23	38	622.06	20	621.96	16	621.85	7	622.01	20	621.85	7	621.96	16	622.51	70
5	622.02	16	623.00	129	622.87	112	623.08	142	622.29	45	622.29	44	621.94	14	621.85	7	622.01	20	621.87	9	621.96	16	622.39	56
6	622.04	17	623.06	136	622.83	108	622.87	118	625.73	643	622.23	38	621.92	13	621.85	7	622.00	15	621.85	7	621.94	14	622.33	50
7	622.02	16	622.89	120	622.50	68	622.73	100	628.77	1440	622.16	30	621.90	11	621.87	9	621.94	14	621.89	9	621.96	16	622.25	41
8	622.06	20	623.50	195	622.29	45	622.64	85	625.75	645	622.14	28	621.87	9	621.86	8	621.97	17	621.92	14	621.92	14	622.23	39
9	622.06	20	623.46	190	622.20	34	622.62	82	623.71	225	622.14	28	621.92	13	621.88	9	621.92	14	621.89	9	621.92	14	622.08	25
10	622.08	22	622.83	108	622.14	28	622.46	64	622.89	115	622.18	33	621.90	11	621.86	8	621.88	9	621.92	14	621.92	14	622.02	21
11	622.04	17	622.56	75	622.12	25	622.44	60	622.64	85	622.20	34	621.92	13	621.88	9	621.89	9	621.92	14	621.94	14	622.23	39
12	622.00	15	622.37	54	622.10	24	622.39	56	622.60	80	622.14	28	621.94	14	621.93	14	621.88	9	622.04	23	621.94	14	622.12	29
13	621.96	12	622.20	34	622.08	22	622.33	50	622.71	92	622.10	29	621.92	13	621.87	9	621.88	9	621.92	14	621.98	18	622.08	25
14	622.02	16	622.08	22	622.12	25	622.31	47	622.85	110	622.10	29	621.94	14	621.87	9	621.87	9	621.89	9	621.94	14	622.00	17
15	622.02	16	621.98	13	625.78	660	622.25	39	622.68	89	622.06	25	621.94	14	621.88	9	621.87	9	621.89	9	622.02	21	622.04	20
16	622.00	15	622.00	15	626.58	890	622.27	42	622.54	72	622.04	23	621.94	14	621.88	9	621.85	7	621.89	9	622.08	25	621.92	10
17	622.04	17	622.12	25	626.89	980	622.31	47	622.39	56	621.98	18	621.88	9	621.85	7	621.85	7	621.92	14	622.29	46	621.92	10
18	622.12	25	622.16	30	626.71	925	622.35	51	622.31	47	621.96	16	621.88	9	621.83	6	621.85	7	621.94	14	622.25	41	621.83	8
19	622.08	22	622.12	25	625.39	553	622.31	47	622.25	40	621.96	16	621.86	8	621.92	13	621.83	6	621.93	14	622.23	39	621.83	7
20	622.06	20	622.18	33	623.81	238	622.35	51	622.20	34	622.02	21	621.83	6	621.96	16	621.85	7	621.92	14	622.08	25	621.83	6
21	622.08	22	622.12	25	623.27	165	622.39	56	622.20	34	622.06	25	621.83	6	622.02	21	621.85	7	621.92	14	622.04	22	621.89	5
22	622.08	22	622.10	24	622.92	123	622.35	51	622.20	34	622.02	21	621.83	6	622.04	23	621.83	6	621.92	14	622.04	22	621.85	4
23	622.02	16	622.08	22	622.54	72	622.31	47	622.23	38	621.98	18	621.82	5	621.98	18	621.87	9	621.89	9	622.04	22	621.89	4
24	622.10	24	622.14	28	622.44	61	622.25	39	622.18	33	621.98	18	621.83	6	621.88	9	621.92	12	621.92	14	621.98	18	621.92	4
25	622.18	33	622.12	25	622.37	54	622.23	38	622.20	34	622.00	19	621.87	9	621.85	7	621.96	15	621.92	14	622.00	19	621.89	4
26	622.25	40	622.08	22	622.96	126	627.87	1262	622.29	44	621.96	16	621.87	9	621.84	7	621.91	12	621.92	14	622.04	22	621.96	4
27	622.23	38	622.08	22	626.08	745	624.02	272	622.54	72	621.92	13	621.85	7	621.83	6	621.87	9	621.92	14	622.12	29	621.94	4
28	622.46	64	622.06	20	629.71	800	622.79	103	622.48	66	621.96	16	621.81	4	621.83	6	621.83	6	621.94	14	622.12	29	621.92	4
29	623.39	180	.....	.....	627.29	617	622.56	75	622.33	50	621.98	18	621.83	6	621.90	11	621.83	6	621.92	14	622.23	39	621.95	4
30	626.04	727	.....	.....	625.33	537	622.60	80	622.25	40	622.03	22	621.83	6	621.93	14	621.87	9	621.92	14	622.20	37	621.92	4
31	625.25	517	.....	.....	627.37	616	.....	.....	622.16	30	.....	.....	621.81	4	621.94	14	.....	.....	621.98	18	.....	.....	621.95	4

Monthly Discharge of Fairchild's Creek near Onondaga for 1913

Drainage Area 112 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January							
February							
March							
April							
May							
June							
July	36	15	18	.32	.13	.16	.18
August	65	13	19	.58	.12	.17	.20
September	26	11	15	.23	.10	.13	.14
October	32	13	16	.29	.12	.14	.16
November	175	17	56	1.56	.15	.50	.56
December	40	16	25	.36	.14	.22	.25
The period	175	11	25	1.56	.10	.22	1.49

Monthly Discharge of Fairchild's Creek near Onondaga for 1914

Drainage Area. 112 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in Inches on Drainage Area
January	727	12	65	6.49	.11	.59	.68
February	262	13	74	2.34	.12	.66	.69
March	980	22	286	8.75	.20	2.55	2.94
April	1,262	38	181	11.27	.34	1.62	1.81
May	1,440	30	146	12.86	.27	1.30	1.50
June	44	13	23	.39	.12	.21	.23
July	18	4	10	.16	.04	.09	.10
August	23	4	10	.21	.04	.09	.10
September	47	6	13	.42	.05	.12	.13
October	23	6	12	.21	.05	.11	.12
November	46	14	22	.41	.13	.20	.22
December	71	4	22	.63	.04	.20	.23
The year	1,440	4	72	12.86	.04	.65	8.75

Boston Creek near York

Location —At the first highway bridge above its confluence with the Grand River, ¼ mile from the Village of York, Township of Oneida, County of Haldimand.

Records Available —June 26th, 1913, to Dec. 31st, 1914.

Drainage Area —123 square miles.

Gauge —Vertical staff, 0 ft.—12 ft. on the downstream side of the left abutment. Elev. of zero on the gauge is 591.00, which has remained unchanged since established.

Channel —Clay and silt; shifting.

Discharge Measurements—From the highway bridge during the high-water period. A permanent wading section is located 1,200 feet above this for the low-water period.

Floods—A severe flood occurred in April, 1912. No extremely high water has occurred since the gauge was established.

Winter Flow—From December to March the relation between gauge height and discharge is affected by ice, and measurements are made to determine the winter discharge. Anchor ice interfered with the measurements during February and part of March of 1914.

Accuracy—The river stage at this section is affected by back water from the Grand River, and the results obtained can only be classed as fair.

Observer—Mungo Peart.

Discharge Measurements of Boston Creek River near York in 1913-4

Date	Hydrographer	Width in Feet	Area of Section in Sq. Feet	Mean Velocity in Feet per Sec.	Gauge Height in Feet	Discharge in Sec-Feet	Discharge in Second-feet per Square Mile
1913							
June 26....	Roberts, E	33	13	1.20	592.19	16	.....
Aug. 19....	"	33	12	1.08	592.02	13	.....
Sept. 11....	"	33	13	1.11	592.10	15	.....
Oct. 13....	"	33	14	.93	592.02	13	.....
Nov. 6....	"	33	14	1.14	592.19	16	.....
Dec. 10....	"	34	17	1.49	592.31	26	.....
1914							
Feb. 12 (a)	"	60	129	.78	595.29	100	.....
Mar. 28....	"	79	679	2.86	599.37	1941	.....
April 1....	"	79	449	1.76	596.62	790	.....
" 6....	"	79	252	1.08	594.08	272	.....
" 7....	"	79	228	1.01	593.83	232	.....
" 7....	"	79	220	.99	593.75	217	.....
June 8....	"	31	19	1.20	592.29	23	.....
" 16....	"	33	18	1.09	592.19	20	.....
" 22....	"	36	14	.79	592.17	11	.....
" 22....	"	36	14	.77	592.17	11	.....
" 22....	"	35	13	.85	592.17	11	.....
" 22....	"	35	14	.76	592.17	11	.....
" 23....	"	45	21	.62	592.17	13	.....
July 14....	"	45	20	.53	592.04	10	.....
" 14....	"	45	19	.55	592.04	10	.....
Aug. 11....	"	45	18	.46	591.96	8	.....
" 11....	"	45	18	.48	591.96	9	.....
" 12....	"	43	16	.36	591.87	6	.....
" 12....	"	43	16	.37	591.87	6	.....
Sept. 11....	"	49	27	.98	592.21	27	.....
" 12....	"	48	27	.98	592.21	26	.....
" 25....	"	46	22	.50	592.08	11	.....
" 25....	"	46	22	.50	592.10	11	.....
" 26....	"	46	22	.51	592.06	11	.....
" 26....	"	46	22	.47	592.08	11	.....
Oct. 8....	"	45	19	.41	591.98	7	.....
" 8....	"	45	19	.40	591.96	7	.....
" 9....	"	45	19	.39	591.96	7	.....
" 22....	"	47	23	.56	592.14	13	.....
" 23....	"	47	23	.54	592.14	12	.....
Nov. 9....	"	47	24	.70	492.18	17	.....
" 9....	"	47	25	.70	592.18	17	.....
" 18 (b)	"	49	29	.87	592.75	25	.....
" 18 (b)	"	49	29	.91	592.75	26	.....
" 18 (b)	"	49	28	.87	592.75	25	.....

(a) Ice conditions
(b) Backwater from Grand River.

Daily Gauge Height and Discharge of Boston Creek near York for 1913

Drainage Area 123 Square Miles

	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Dis-charge	Gauge Ht.	Dis-charge	Gauge Ht.	Dis-charge	Gauge Ht.	Dis-charge	Gauge Ht.	Dis-charge	Gauge Ht.	Dis-charge	Gauge Ht.	Dis-charge	Gauge Ht.	Dis-charge	Gauge Ht.	Dis-charge	Gauge Ht.	Dis-charge	Gauge Ht.	Dis-charge	Gauge Ht.	Dis-charge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec ft.*	*Feet*	*Sec-ft.*
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	592.13	16	591.92	7	592.02	11	591.96	8	592.32	24	592.60	49
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	592.13	16	591.92	7	592.04	12	591.94	8	592.25	21	592.52	41
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	592.15	16	591.86	6	592.11	15	592.00	10	592.25	21	592.56	44
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	592.23	19	591.86	6	592.08	14	592.02	11	592.26	22	592.55	44
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	592.13	16	591.84	6	592.02	11	591.94	8	592.23	20	592.50	39
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	592.21	18	591.84	6	591.98	9	591.94	8	592.22	22	592.45	35
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	592.25	20	591.88	7	591.98	9	592.00	10	592.22	22	592.42	32
8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	592.25	20	591.90	7	591.98	9	591.98	9	592.21	19	592.47	36
9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	592.21	18	591.96	8	591.96	8	591.98	9	592.32	24	592.31	25
10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	592.27	22	591.94	8	591.98	9	591.94	8	593.08	105	592.31	25
11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	592.17	17	592.02	11	592.10	15	591.98	9	593.42	157	592.39	30
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	592.17	17	592.29	25	591.94	8	591.86	5	593.07	103	592.38	30
13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	592.17	17	592.21	18	591.94	8	592.02	13	592.95	89	592.33	26
14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	592.17	17	592.11	15	591.86	6	591.94	8	592.90	83	592.35	27
15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	592.15	16	592.17	17	591.86	6	591.98	9	592.84	75	592.35	27
16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	592.15	16	592.02	11	591.82	5	591.98	9	592.79	69	592.33	26
17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	592.11	15	592.02	11	591.90	7	591.98	9	592.74	63	592.37	28
18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	592.15	16	592.02	11	591.86	6	592.02	11	592.62	51	592.29	23
19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	592.09	14	592.02	11	591.86	6	591.92	7	592.67	56	592.29	23
20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	592.02	11	592.04	12	591.90	7	592.02	11	593.31	140	592.23	20
21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	593.04	12	591.98	9	591.94	8	592.10	15	593.71	205	592.22	20
22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	592.06	13	591.98	9	591.98	9	592.10	15	594.12	270	592.35	27
23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	592.04	12	591.98	9	592.02	11	592.10	15	593.68	200	592.31	25
24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	592.02	11	591.94	8	592.02	11	592.17	17	593.57	185	592.24	20
25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	591.98	9	592.02	11	592.00	10	592.27	22	593.68	200	592.18	19
26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	591.96	8	592.09	14	592.02	11	592.37	32	593.28	130	592.31	25
27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	591.94	8	592.09	14	592.02	11	592.40	35	593.02	97	592.37	28
28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	591.98	9	592.02	11	591.94	8	592.33	28	592.94	87	592.25	21
29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	591.98	9	592.17	17	591.94	8	592.33	28	592.79	69	592.23	20
30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	591.94	8	592.11	15	592.02	11	592.31	26	592.65	53	592.20	18
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	591.92	7	592.04	12	.....	.....	592.31	26	.....	.....	592.20	18

Daily Gauge Height and Discharge of Boston Creek near York for 1914

Drainage Area 123 Square Miles

	January		February		March		April		May		June		July		August		September		October		November		December	
	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge	Gauge Ht.	Discharge
	Feet	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*	*Feet*	*Sec-ft.*
1	592.18	18	595.00	445	593.42	15	596.98	980	593.23	130	592.32	25	592.10	12	591.89	7	592.29	24	592.06	11	592.06	11	592.92	85
2	592.32	25	595.17	480	593.42	13	596.42	800	593.29	150	592.29	24	292.12	13	591.92	7	592.75	65	592.00	10	592.14	14	593.16	115
3	592.34	26	594.25	295	593.46	15	597.37	1110	593.04	100	592.18	18	592.14	14	591.92	7	592.83	74	591.98	9	592.14	14	593.52	170
4	592.21	19	593.77	210	593.56	16	595.83	640	592.87	79	592.29	24	592.12	13	591.92	7	592.77	67	591.92	7	592.16	15	593.33	140
5	592.29	23	593.77	210	593.71	16	594.79	410	593.12	110	592.35	27	592.06	11	591.92	7	592.60	49	591.98	9	592.14	14	593.12	110
6	592.48	37	594.50	250	593.71	16	594.18	290	594.18	275	592.31	25	592.06	11	591.92	7	592.52	41	592.06	11	592.14	14	592.89	81
7	592.27	22	595.35	240	593.75	17	593.79	220	594.52	355	592.31	25	592.12	13	591.94	8	592.54	43	592.00	10	592.18	16	592.25	65
8	592.22	20	596.92	215	593.64	17	593.66	200	594.12	265	592.73	62	592.08	12	591.94	8	592.46	36	592.00	10	592.10	13	592.48	38
9	592.22	20	596.29	215	593.66	16	593.48	165	593.50	170	593.60	49	592.08	12	591.92	7	592.35	27	591.94	8	592.12	13	592.35	27
0	592.24	21	595.81	190	593.62	15	593.31	140	593.23	130	592.85	79	592.08	12	591.94	8	592.29	23	591.98	9	592.12	13	592.29	14
1	592.38	23	595.58	145	593.52	15	593.06	105	592.96	90	592.60	49	592.08	12	591.94	8	592.31	25	591.87	6	592.12	13	592.35	16
2	592.43	20	595.29	101	593.50	13	593.04	105	592.83	79	592.44	34	592.00	10	591.92	7	592.20	17	591.94	8	592.14	14	592.46	18
3	592.66	27	594.94	95	593.39	150	593.00	95	592.94	88	592.35	27	592.06	11	591.92	7	592.10	13	592.02	10	592.27	22	592.35	13
4	592.57	23	594.58	80	593.98	250	592.92	85	593.06	102	592.23	17	592.04	11	591.96	8	592.16	15	592.08	12	592.14	14	592.27	10
5	592.58	23	594.29	64	594.77	395	592.83	74	593.08	105	592.25	19	592.04	11	591.96	8	592.14	14	592.16	15	592.23	19	592.81	20
6	592.50	18	594.14	45	597.20	1035	592.85	75	592.87	79	592.18	16	592.04	11	591.96	8	592.12	13	592.16	15	592.42	32	592.77	17
7	592.47	17	593.96	31	597.98	1310	592.85	75	592.71	60	592.12	13	592.04	11	592.00	10	592.12	13	592.25	20	592.56	45	592.75	16
8	592.63	26	593.77	26	598.81	1630	592.89	81	592.58	47	592.10	12	592.04	11	591.96	8	592.08	12	592.10	13	592.73	62	592.75	16
9	592.50	18	593.73	24	599.68	2150	592.92	85	592.46	36	592.14	14	592.04	11	592.00	10	592.06	11	592.14	14	592.64	53	592.79	18
0	592.48	23	593.64	22	598.44	1570	592.94	91	592.44	34	592.12	13	592.00	10	591.98	9	591.96	8	592.14	14	592.52	41	592.73	15
1	592.63	20	593.62	19	597.71	1250	593.20	130	592.39	30	592.08	12	592.00	10	592.04	11	592.04	11	592.16	15	592.37	28	592.79	18
2	592.67	22	593.52	17	596.73	885	593.37	150	592.37	28	592.12	13	592.02	10	592.00	10	592.10	13	592.12	13	592.39	30	592.73	15
3	592.61	19	593.46	15	596.18	740	593.18	126	592.31	25	592.10	12	592.04	11	592.16	15	592.10	13	592.12	13	592.42	32	592.68	13
4	592.63	20	593.48	14	595.29	515	593.06	110	592.23	20	592.14	14	592.00	10	592.29	21	592.10	13	592.10	13	592.31	25	592.71	11
5	592.66	22	593.48	14	594.54	360	592.92	90	592.27	22	592.12	13	592.02	10	592.23	17	592.10	13	592.02	10	592.35	27	592.68	10
6	592.75	27	593.44	14	594.50	350	594.00	260	592.37	28	593.12	13	591.94	8	592.18	16	592.08	12	592.12	13	592.39	30	592.75	12
7	592.98	92	593.44	16	595.75	620	593.89	230	592.48	38	592.12	13	591.96	8	592.14	14	591.96	8	592.10	13	592.42	32	592.62	8
8	593.08	185	595.44	17	599.29	1830	593.62	190	592.50	39	592.10	12	591.94	8	592.12	13	592.06	11	592.10	13	592.54	43	592.68	7
9	595.68	610	.....	.....	598.44	1560	593.42	160	592.52	41	592.14	14	591.92	7	592.16	15	592.10	13	592.06	11	592.87	79	592.79	11
0	595.68	610	.....	.....	597.00	990	593.25	135	592.42	32	592.14	14	591.89	7	592.02	10	592.08	12	592.10	13	592.94	87	592.75	10
1	595.20	490	.....	.....	598.00	1315	.....	.....	592.33	26	.....	.....	591.89	7	592.08	12	.....	.....	592.10	13	.....	.....	592.79	11

Monthly Discharge of Boston Creek near York for 1913

Drainage Area 123 Square Miles

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Maximum	Mean	Depth in Inches on Drainage Area
January							
February							
March							
April							
May							
June							
July	22	7	14	.18	.06	.11	.13
August	25	6	11	.20	.05	.09	.10
September	15	6	9	.12	.05	.07	.08
October	35	5	14	.28	.04	.11	.13
November	270	19	89	2.19	.15	.72	.81
December	49	18	28	.40	.15	.22	.26
The period	270	5	27	2.19	.04	.22	1.51

Monthly Discharge of Boston Creek near York for 1914

Drainage Area 123 Square Miles.

Month	Discharge in Second-feet			Discharge in Second-feet per Square Mile			Run-off
	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Depth in inches on Drainage Area
January	610	17	82	4.96	.14	.67	.77
February	480	14	125	3.90	.11	1.01	1.04
March	2150	13	615	17.48	.11	5.0	5.76
April	1110	74	247	9.02	.60	2.01	2.24
May	355	20	90	2.89	.16	.73	.85
June	79	12	23	.64	.10	.19	.21
July	14	7	10	.11	.06	.08	.09
August	21	7	10	.17	.06	.08	.09
September	74	8	23	.60	.07	.19	.21
October	20	6	11	.16	.05	.09	.11
November	87	11	29	.71	.09	.24	.27
December	170	7	36	1.38	.06	.29	.33
The year	2150	6	109	17.48	.05	.89	11.98

Summary of Discharge

Summary of discharge in second-feet per square mile for regular river stations on Grand River for which such data are available in this report

Station	Drainage Area	1913												
		Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Period
Grand River at Belwood	270	.....	.....	.....	.....	.....	.....	.....	.02	.02	.03	.20	.14	.08
Grand River at Conestogo	538	.....	.....	.....	.....	.....	.....	.....	.05	.04	.09	.44	.28	.18
Grand River at Galt	1,356	.....	.....	.....	.....	.....	.....	.....	.11	.10	.18	.50	.24	.23
Grand River at Glenmorris	1,385	.....	.....	.....	.....	.....	.....	.....	.18	.14	.20	.66	.19	.27
Grand River at Brantford	1,991	.....	.....	.....	.....	.....	.....	.23	.20	.17	.26	.72	.36	.32
Grand River at York	2,311	.....	.....	.....	.....	.....	.....	.21	.15	.14	.18	.76	.40	.31
Irvine River at Salem	64	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.41	.18	.29
Conestogo River at St. Jacob's	312	.....	.....	.....	.....	.....	.....	.....	.03	.03	.07	1.16	.83	.42
Speed River at Caraher's Bridge, near Guelph	80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.64	.30	.47
Speed River at Hespeler	259	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.70	.46	.58
Galt Creek at Galt	48	.....	.....	.....	.....	.....	.....	.....	.54	.56	.77	.95	.79	.72
Nith River near Canning	386	.....	.....	.....	.....	.....	.....	.38	.36	.32	.39	1.21	.68	.56
Whiteman's Creek near Burford	153	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.71	.42	.57
Fairchild's Creek near Onondaga	112	.....	.....	.....	.. ..	.....	.....	.16	.17	.13	.14	.50	.22	.22
Boston Creek near York	123	.....	.....	.....	.. ..	.....	.....	.11	.09	.07	.11	.73	.23	.22

Summary of Discharge

Summary of discharge in second-feet per square mile for regular river stations on Grand River for which such data are available in this report

Station	Drainage Area	1914												
		Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
Grand River at Belwood	270	.14	.19	2.16	1.75	.36	.03	.01	.02	.02	.04	.30	.45	.43
Grand River at Conestogo	538	.35	.42	1.91	1.59	.36	.09	.05	.07	.11	.09	.36	.41	.47
Grand River at Galt	1356	.31	.33	1.79	1.35	.39	.17	.13	.13	.16	.14	.30	.34	.46
Grand River at Glenmorris	1385	.30	.45	2.74	1.55	.54	.16	.10	.11	.15	.13	.29	.39	.58
Grand River at Brantford	1991	.45	.88	2.02	1.54	.50	.24	.12	.11	.17	.17	.35	.42	.58
Grand River at York	2311	.44	.72	2.53	1.41	.54	.25	.15	.14	.19	.16	.28	.34	.60
Irvine River near Salem	64	.38	.65	3.05	1.38	.16	.02	.02	.02	.03	.02	.27	.24	.52
Conestogo River at St. Jacob's	312	.56	.44	4.78	1.37	.12	.01	.01	.02	.02	.02	.27	.29	.65
Speed River at Caraher's Bridge, near Guelph	80	.87	.31	3.28	1.14	.25	.03	.03	.09	.30	.13	.67	.34	.62
Speed River at Hespeler	259	.56	.78	1.57	1.36	.64	.40	.21	.24	.32	.18	.25	.27	.56
Galt Creek at Galt	48	.81	.32	1.83	.97	.71	.27	.19	.26	.33	.29	.54	.84	.61
Nith River near Canning	386	.92	.82	2.59	1.40	.69	.38	.23	.20	.26	.30	.68	.68	.76
Whiteman's Creek near Burford	153	.50	.68	1.44	1.57	1.16	1.26	.23	.21	.46	.24	.46	.67	.74
Fairchild's Creek near Onondaga	112	.59	.66	2.55	1.62	1.30	.21	.09	.09	.12	.11	.20	.20	.65
Boston Creek near York	123	.67	1.02	5.00	2.01	.74	.19	.09	.09	.19	.10	.24	.29	.89

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PROVINCE OF QUEBEC
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GEORGIAN BAY
LAKE HURON
LAKE ST. CLAIR
LAKE ERIE
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OF THE
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